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Strategies and business models for Lifelong Learning / Networking Conference

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Table of Contents

Strategies and business models for Lifelong Learning

The main theme of this conference is 'Strategies and business models for lifelong learning'. In view of the Eurostat-figures published in September 2010 , lifelong learning is an urgent issue on the agenda of both universities and governments. Eurostat defines lifelong learning as education and training received within four weeks preceding the survey by persons aged 25 to 64.
It corresponds to either formal education received in schools, colleges and universities or to non-formal education and training which covers short courses followed for job or private reasons. It excludes informal learning, such as self-learning through the use of printed material, visiting libraries etc. In 2009, 9,3% of the EU-27 population participated in LLL, compared with 8,3% in 2003. The difference with some other continents (US, Japan) is significantly large and the Eurostat-figure is far below the Europe 2020 benchmark of a 15% participation. Furthermore, significant differences are found between member states. The highest shares are found in Denmark (31,6%), Sweden (22,2%), Finland (22,1%), the UK (20,1%) and the Netherlands (17,0%), and the lowest in Bulgaria (1,4%), Romania (1,5%) and Hungary (2,7%). Buts also low figures appear in Belgium (9,3%) Germany (7,8%), Ireland (6,3%), Spain (10,4%), France (6%), Italy (6%), Portugal (6,5%), Estonia (10,5). This is insufficient for the knowledge society Europe is aspiring to.

From a university perspective, especially in the Nordic countries, LLL is embedded in university strategies close to their mission. They developed adequate business models and an educational culture for it. This is not the case in most of the European countries. One might conclude that there is simply a lack of expertise in the field of LLL in large parts of Europe. This expertise is well developed in the in the Northern part of Europe and in the open and distance teaching universities. This will lead to different speeds in knowledge dissemination and hence in innovation between European countries and regions!
This conference contributes to this expertise, based on real life experiences and studies, often supported by the European Commission, that is more aware of the dramatic situation than national governments. It does focus on university strategy and business models, formal and informal learning and their relationship, open educational resources, learning for employability and entrepreneurship, teaching and learning through networked curricula in order to enrich programmes and the experience of students, virtual mobility extending the physical teaching and learning space, virtual campuses and quality assurance in lifelong learning on line or at a distance.

Call for Papers

SECOND ANNOUNCEMENT AND CALL FOR PAPERS

EADTU's Annual Conference 27-29 September 2010 I Zermatt, Switzerland

Strategies and Business models for Lifelong Learning

The scope of the conference

The development of institutional strategies and business models for lifelong open and flexible learning, including (international) cooperation between institutions. The conference sessions will cover policy approaches (European, National and institutional), good practices and research & innovation in the field of lifelong learning strategies, QA in e-learning, informal and formal learning, academic cooperation, employment and entrepreneurship.

The themes

- Showcases of successful Lifelong learning strategies and business models;

- Open educational resources in higher education; cooperation, development and implementation models;

- Academic cooperation: international master spaces and joint doctorates;

- Networked teaching and learning at the undergraduate and graduate level;

- Raising the numbers and quality of mobility of staff and students by the integration of virtual Erasmus;

- Education and training for employment and entrepreneurship through open and flexible provisions, combining informal and formal learning for innovation;

- Quality assurance for e-learning in higher education;

- Benchmarking the quality of open and flexible learning;

- Setting the research and innovation agenda for open and flexible teaching and learning in higher education and for lifelong learning.

Call for papers

During the conference, a series of plenary and parallel sessions will be guiding the audience through the various aspects of networked teaching and learning in a knowledge society. Submissions on each of the conference themes are welcome, though need not be limited to them.

Practical information for submitting papers:
Contributions should be submitted by abstract with accompanying title, strand reference and keywords. For more detailed information please check the **format specifications**. The Programme Committee subjects the programme and the abstracts to a process of review. Acceptance of your contribution is announced by web-publication of the finalised programme.

Deadlines:
Submission of abstracts: 31 March 2010
Web-publication of acceptance: 26 May 2010
Full paper deadline*: 1 September 2010

Submit your contribution to: paperszermatt2010@eadt.eu

**Mind that on passing the deadlines, inclusion of the contribution in the conference 2010 proceedings cannot be guaranteed. EADTU is allowed to publish the materials in the EADTU conference proceedings. Author(s) will retain the copyright ownership of the material(s) appearing in the conference proceedings. All selected papers will be published in the EADTU proceedings available directly after the conference.*

Abbott, Dina: Enhancing on-line climate change education: Distance and conventional university collaboration for a Masters curriculum.

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Abstract

Universities across Europe have complementary strengths, both in terms of their disciplinary expertise and the ways in which they engage with students. Understanding the complex, real-world challenge of climate change requires a holistic approach which draws potentially on these complementary strengths through collaborative working. Taking the different ways in which universities engage with on-line distance learning and teaching as its starting point, this paper explores the potential of distance learning/conventional University partnerships to develop synergies which contribute to citizen and professional practitioner empowerment in debates about climate change. The exploration is framed within a European Union (EU) Erasmus[1] project 'The Lived experience of climate change: interdisciplinary e-module development and virtual mobility'. The project brings together six distance teaching and three conventional universities across six EU countries, plus the European Association of Distance Teaching Universities (EADTU), to create a Masters curriculum in the area.

Introduction

This paper is a reflection on my participation in an ERASMUS as one of the three partners from a conventional university, working with six others from distance learning and teaching[2] institutions spread across the EU. The project is about developing a post-graduate Masters curriculum on the 'Lived Experience of Climate Change' (LECHE)[3]. To do this, the paper begins with an explanation of what is meant by both terms 'conventional' and 'distance' universities within the context of the UK (which I focus on because this is where I am based), and the hierarchical relationships that have existed between these and also historically the UK dedicated distance-learning university, The Open University This is followed by a critique of some conventional university responses to distance and

[1] European Region Action Scheme for the Mobility of University Students (ERASMUS)

[2] Hereafter referred to as 'distance-learning' only for the sake of convenience.

[3] Website can be found at: www.leche.open.ac.uk

on-line learning, with the suggestion that partnering with distance-learning experts who do this every day to enhance lifelong-learning can result in a positive educational experience for students.

Hierarchical leanings of conventional universities in the UK and the position of the Open University

To begin with, by a 'conventional' (or a 'traditional' university as it is often known), I am referring to institutions of higher education that cater for mostly young students (18 years onwards) who are usually registered as full-time students to read for undergraduate degrees, having completed and achieved specified examination grades to meet the entry requirements. These students usually reside at university student accommodation or at least nearby. However, it should be noted that students, especially those who have difficult personal financial situations are opting to stay with their parents and register with local universities to minimise costs. Having said this, conventional universities are currently offering an increasing number of places to mature full-time, part-time and post-graduates in an attempt to widen participation. Teaching is usually on a face-to-face basis, carried out in campus based classroom. Student directed learning is also usually centred on learning centres (libraries) based on-campus. Students at conventional universities thus have direct, on-campus access to various forms of educational resources including immediate access to lecturers, peer groups, laboratories, computing technologies, university-based social activities and so on, the extent and quality of these usually depending on how wealthy their university is. However, when students finish their degrees, they will move away back to their hometowns or employment and bar a comparatively few alumni, will necessarily sever ties with the university.

'Distance-learning' institutions, as exemplified in the UK by the Open University, usually also cater for both under- and post-graduate students but from a distance and virtually, although often they will have full- and part- time PhD students on campus. They will organise residential schools on some modules where physical location and presence is essential, as in laboratory work for. Students at the Open University are regarded as life-long learners seeking to undertake a degree level study for a variety of reasons ranging from interest to bettering career prospects. Student motivation, age range and previous level of formal educational qualifications are hugely varied[4]. Also, students come from very different walks of life, bringing with them varied life situations which involve employment, family and other commitments.[5]

[4] When working as an associate lecturer for the OU I never once come across a single group where student educational qualifications have been similar. Groups can have a huge range with someone who comes in without any qualifications, to someone with a high medical qualification or a PhD. Distance-learning and its flexible approach also attracts a high number of disabled students (both physically and with specified learning difficulties).

[5] Amongst students I have taught are those based at home looking after children or the elderly, in the armed forces (army, navy, air force, United Nations), men and women in prisons, aid-workers in faraway isolated places of the world.

The key approach to distance-learning is flexibility and study is carried out from a distance through e-learning (electronic) technology which students can tap into as and when they are able. This is not to say that there is no face-to-face contact. The Open University offers tutorial sessions which run in the evenings or weekends to supplement teaching in addition to residential schools which can be up to a week in length. Residential schools are still considered the only way of providing laboratory experience in the natural sciences. However, distance education, like any other higher-education institution is facing cuts and therefore these provisions are constantly being replaced through new technological ventures into building up virtual student classrooms and communities[6]. It is important to note that on-line courses are also heavily supplemented with hard-copy reading materials and books, and audio-visual materials (originally on TV and radio, now replaced by DVD/CD, and increasingly interactive). Students are also provided with twenty-four hour access to electronic libraries. As such, these 'life-long learners' often display commitment towards their university even when they have finished their degrees, with some of them enrolling on other courses as well as taking an active part in alumni activities. Sometimes alumni engage with their academic peers substantively on projects. For example, the Open University has a Masters Programme in Development Management, leading to an MSc, which attracts both actual and aspiring development agency professionals from the UK, continental Europe and across the world. There is a significant cohort of students in Sub-Saharan African countries, especially Uganda. In 2004 Sub-Saharan African alumni of the Programme teamed with OU academic staff to form a 'Sustainable Development in Practice' network. Activities included hosting a study tour of OU environment-related academics, an international workshop in Kampala (Uganda) and a book 'Environment, development and Sustainability; perspectives and cases from around the world', where alumni, as senior practitioners, contributed several chapters and which was published by Oxford University Press in September 2009.

To move on and set the higher educational scene in the UK, there are many possible classifications of publicly funded universities (i.e. private ones are not included in this analysis). For the purposes of this paper I adopt a simple three-fold classification:

> i) The Russell Group, an elite group of 20 well-established universities, including 'ancient' Oxford and Cambridge. These universities are well resourced with strong research facilities and records.
>
> ii) The rest of the UK conventional universities, including all those that were designated in the last wave of expansion in 1992, often from Polytechnics and Colleges of Higher Education (the University of Derby, where I work, being an example of the latter). These Universities tend to be more poorly resourced, are not strong in research except for some niche areas, and often focus on teaching where they also tend to have a broad and flexible approach to widening participation from disadvantaged groups.

[6] On courses I was teaching, the OU cut down almost weekly face-to-face tutorials to a handful per year and did away with residential schools which are embedded in courses altogether. This is replaced by new technologies (such as software 'Elluminate') which enables students from all over the world to participate live in a virtual classroom based e-tutorial.

iii) The Open University (OU) which is the established national distance teaching University. For a long time the OU was the largest and the most radical distance-teaching institution in the world. It was founded in 1969 and can in that sense be viewed as part of an earlier 1960's expansion of UK higher education, but its founding idealism of reaching out to all wishing to take-on life-long learning, and without the requirement of any entry qualifications, sets it apart in a category of its own. In fact this radicalism and the notion that anyone can participate into higher education without prior qualifications was much criticised during its formative years. Since then, however, the OU has become a leading institution both in the UK and Europe, and has a high reputation for excellence both in research and teaching.

Whilst there is little doubt that even the elite universities have attempted to enforce change and break down class barriers in, for instance, admitting students from state schools rather than private fee-paying schools[7], universities in the UK nevertheless remain hierarchical - albeit defined by different markers. These markers include the so called league tables which rank universities according to various indicators such as research outputs, teaching quality, student satisfaction, resource base and so on. Universities in Britain, as institutions, therefore retain hierarchical characteristics, continuously reinforced by tabulated hierarchical places in the league tables and other mechanisms, for example, the comparative lack of success for funding applications from the research council bodies for the newer universities.

In this hierarchy-coloured scenario, the OU too faced difficulty prior to opening doors to its first students in 1971. Dissidents, often associated with the Conservative Party (in opposition when it was created, but in power by 1971), voiced doubts about the value of the degrees afforded by distance-learning based on a flexible approach of credit-transfer and credit-accumulation and nil entry requirements. These voices were clearly strong as shown by Mills (1999 p71) in citing Hollis (1977) writing about Jennie Lee, the minister responsible for establishing the OU during the Wilson[8] era, who states that 'they objected to any notion that the Open University might be a remedial university, a 'secondary modern'[9] amid grammar school and public school players'. As I say above, the OU has proved itself over and over again as a top academic institution, and consistently is top of

[7] Class bias and resistance nevertheless does come forth from time to time. For instance, Dr Bruce Charlton, a Reader in Evolutionary Psychiatry, Newcastle University, claimed that the reason for low proportions of working-class students at older universities is the "natural outcome" of IQ differences between the classes, where those from higher social classes have a higher IQ (Times Higher Education, 2008).

[8] Harold Wilson served as the British Prime Minster for the Labour Party with a first term in office from 1964-1970, and a second one from 1974-1976. During this time he introduced several radical social and political changes, including a broader access to higher education.

[9] There existed up until 1970s in the UK, a distinction between secondary modern schools which were for those pupils who did not achieve higher grades in their 'Eleven plus' examinations which allowed them to cross from primary to secondary schooling. The grammar school was reserved for the top achievers. This system has since been replaced by the 'comprehensive' schools.

the student satisfaction league tables in the UK[10]. Thus conventional universities readily use the teaching materials that the OU produces (often even plagiarising them!), tap into their world class research papers and attempt to emulate their distance-learning models that use state-of-the art technologies!

As hinted at above, a hierarchical higher education and institutional culture in the UK is very much alive and kicking even if below the surface. This is bound to influence how UK universities perceive each other- even if student views are different. Unfortunately these perceptions often jeopardise a truly collaborative culture between distance-learning and conventional higher education institutions whose relationships remain a delicate balance.

Conventional universities and the current push for on-line distance-learning

The current economic and social climate which in the UK includes a large government debt after using public money to stave off the worst effects of the global economic recession, changing demographic patterns, lack of graduate employment, limited resources and serious questions challenging the legitimacy of higher education itself are having a considerable impact on student recruitment and institutional response, making it hard work for colleges and universities to fulfil their primary mission - that of creating and disseminating knowledge at a level required to meet society's higher educational needs.

Within the context of the enormous challenges created by a general global economic downturn, there are also the UK based funding cuts[11] and budget restrictions which are justified by the new coalition Government in terms of lowering the public debt . This leaves many of the conventional universities in a transitory phase, desperately looking for new opportunities to attract income that can be generated from the under-, post-graduate, vocational and any other life-long learner markets they can find. Thus there are constant revisions and newer versions of older hats, often with fanciful titles, offered for both under-and post-graduate markets[12], short courses and dedicated professional certification courses based on distance and e-learning. In this, conventional universities are particularly hoping to attract international students on-campus, through distance education and any other means[13]. However, conventional UK universities continue to face severe competition

[10] Occasionally a very small private university might oust the OU (UK) from top position.

[11] The departing UK Labour Government whose one strong election slogan was ‘education, education, education’ promised education ‘cuts, cuts, cuts’ in the 2010 budget. This included cuts for research and teaching funding, student places totalling approximately £449 million (Synopsis BBC News 1 February, 2010). The following Conservative-Liberal Democrat coalition Government in the April 2010 budget promised more ‘adjustments’ (The Guardian, 2010).

[12] The in road into ‘Sports Science’ degrees which became fashionable about five to ten years ago and were readily created by the new universities in particular are a good example. Nowadays, for a variety of reasons including competition from newer courses, recruitment is struggling.

[13] In this ‘rush for gold’, India and China with their large populations are seen as areas for lucrative growth. Apart from student recruitment teams whose presence is regularly felt in these countries,

internationally from countries that are developing their own distance education[14] and home universities as they all scramble to get a foothold in technology-led education. Also as these markets have already been very successfully exploited by the OU establishing it as the leader in distance delivery, conventional universities are in direct competition with very high standards and established practices.

There are several reasons why conventional university entries into distance-learning markets are not always as successful as with the OU for instance. Arguably one of these reasons is the way conventional universities, deal with the development of on-line teaching. Whilst with distance-learning institutions, familiarity and knowledge of on-line pedagogy is a necessary condition for learning and teaching, it is essential that all staff[15] participate in this and keep up-to-date with new software and technology led teaching packages. With conventional universities, on-line development and teaching is often seen as the responsibility of particular departments (such as computing or IT) or particular individuals within specialist subjects. This means that institutions invariably end up adopting 'champions' of on-line teaching, while other teaching staff in the designated chain either remain peripheral to the developments or have little or no role play in this even if they wish to. In other words, conventional universities have no in-built structures as do established distance-learning institutions to act as inclusive spaces. The priority of conventional Universities, which is ultimately institutionally and structurally embedded, is for face-to-face delivery. Therefore excursions into distance learning are often seen as add-ons or supplements to face-to-face teaching. Much distance-learning work involving academics is thus bound to have fewer resources allocated to it and is done at the margins of academic time, competing with other priorities (e.g. research) when the day in the lecture theatre/seminar room has ended. Also, often at conventional institutions, on-line time is not necessarily recognised officially as teaching contact time for work-load data. Therefore, under these conditions, it is almost inevitable that distance-learning will get lesser priority and perhaps the quality of delivery will suffer[16].

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other attempts to capture students have been made. For example, University of Nottingham, for instance, has built replica campus buildings in China.

[14] Both India and China have not proved to be such lucrative student hunting ground as many of the British universities have hoped. This is because these countries a) have their own excellent long-standing universities, b) there is a certain amount of nationalist pride in educational self-sufficiency and certainly in India, there is a strong call for 'Indianisation' of education with a severing of old colonial ties with British educational systems (e.g. the University of Baroda's radical departure from British academic dress), and c) both countries are well-versed in technology and related educational developments. Some UK universities have now thus shifted their focus to eastern European markets in the hope that they do better in terms of recruitment.

[15] The OU (UK), whose courses are mainly taught by hundreds of Associate Lecturers makes on-line teaching ability a part of the essential criteria of recruitment to teaching posts. Staff development for training on new technologies is also an on-going essential activity supported by specialist tutors and efficient computing help lines.

[16] See also Boon and Sinclair 2010 for other points on the positives and negatives of on-line teaching for conventional university teachers.

Spaces that are there then, such as with software Blackboard[17], where students can communicate with each other and their tutors have a limited scope and often just act to complement the 'real' teaching which happens at the classroom level face-to-face. For example, at my university, many Blackboard users only use this space to post announcements (e.g. classroom times and room numbers) and place limited teaching information for students to access (e.g. module booklets). This assertion is backed up by studies such as MacKeogh and Fox (2009) who in a study of staff interaction with e-learning at the (non-UK) Dublin City University (DCU) found that "Almost 90% of Faculty staff and 100% of Oscail[18] staff have used the VLE[19] Moodle in their teaching, indicating an extremely high penetration of the VLE in DCU modules. However, MacKeogh and Fox (*ibid.*) allege that the most common use is transmitting information, class notes and resources, with relatively low use of the more interactive and innovative features of the VLE. For example, less than one third of Faculty staff (31.6%) initiated online discussions and just one fifth (20%) assessed online contributions (Oscail tutors make more extensive use of the VLE for teaching and assessment) (p152)." In all this, what does need to be recognised is summed up in this quote from Steppen Heppell (2007) who argues that "Computers are everyday tools for us all, seen or unseen, but their value in learning is as tools for creativity and learning rather than as machines to "deliver" the curriculum"!

Also, conventional universities sometimes give mixed messages about on-line learning and teaching. For instance, on the one hand, sometimes specialist funding is given to the 'champions' to develop on-line teaching, but on the other hand, virtual spaces are also presented as a threat, a means of checking, controlling and policing activities, quality of communication and teaching that is carried out here. Any manager, at any time can access Blackboard spaces, for instance, and critique these. It is, therefore, not uncommon to find that people are reluctant to engage in on-line activity as this makes them feel more vulnerable than those that do not. As Land and Bayne (undated) in their study on Blackboard and VLE study at the Coventry and Edinburgh Universities, UK suggest, "VLE surveillance tools record every move a student makes within the learning space, and provide intimate details of every student's working hours and patterns of study".

It is not just the staff, but also students who shy away from using these institutional learning spaces even though they will happily engage for many hours on social networking or other websites such as FACEBOOK or GOOGLE. Students too feel threatened in developing more than just the basic communication on Blackboard despite the fact that this software offers much opportunity to do so[20]. Instead of being spaces where virtual staff and student communities can engage in constructive

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[17] 'Blackboard' is an electronic learning platform which has been purchased by many UK institutions of higher education in order to create personalized learning and teaching virtual discussion spaces. As such Blackboard, as a software tool, has an extensive capacity and scope to generate efficient and useful means of achieving lifelong learning.

[18] Oscail (The National Distance Education Centre), is a part of the Dublin City University.

[19] Virtual learning Environment.

[20] This is not to say they may not feel so in face-to-face sessions which they often do, but here there is an opportunity for a good lecturer to realise this and build up their confidence by drawing them in.

learning and teaching, virtual spaces such as with Blackboard appear to alienate potential participants in what feels like swimming through cages under water. Furthermore, whilst staff in conventional universities are generally aware of the notions of copyright authenticity, staff development usually presents them as threats, homing in on the disciplinary actions that will follow if they are broken, rather than providing opportunities and staff development to appreciate a fuller understanding of these. Copyright issues are, of course, more visible and exposed when in the global public eye on-line and thus certainly play a role in making many wary of on-line teaching[21].

As suggested earlier, students too are anxious about on-line participation which can be presented as a threat rather than a self-educating experience. For instance, in the department I work in, I have attempted to get students to use the anti-plagiarism tool/software *'Turnitin'* to submit their work. This software allows students to review their submission a few times before it can be finally submitted so that students can assess the levels of plagiarism for themselves and correct any errors. This exercise is clearly beneficial for students who in fact may not understand what is meant by plagiarism and the need to visibly reference someone else's work whether this is from web sources, bought essays, electronic books and journals- all sources which are easily available on the www[22] these days. Checking for self-plagiarism is an important academic lesson, both so as not to jeopardise any academic offence rules but also to enable students to engage in their own reflective thinking and use of their own wording. However, rather than seeing it as a positive educational activity, students and their lecturers continue to perceive *Turnitin* assignment submissions as 'catching out' plagiarism as this is the mode in which it is presented.

Another daunting aspect for many in conventional universities is that their teaching moves from confined spaces of the classroom to global spaces of virtual classrooms. This means that teaching styles, often dependent on the providing students with lectures which are simply frameworks that students are then supposed to research and embroider details around, now have to be very detailed, taking into account several other factors. From my own experience of writing distance-materials, this is a very difficult change, where instead of providing references for students to explore in learning centres, or asking them to visit you in your office to resolve any queries they have, on-line teaching requires clear-cut materials, fuller, accessible detail, up-to-date information, and a sensitivity towards a global reach. For example, the tendency of using UK-based examples when teaching in a UK classroom is not necessarily appreciated by those studying the course in Africa. These therefore need to be broader so that both UK and African students understand them. Also, a global rather than a local peer-reviewed critique of your work, which distance-learning engenders, is also frightening making it very demanding to produce such visible materials for world consumption. It is not surprising therefore that academic staff may continue to feel more comfortable with the lecture mode of teaching- although there are several pedagogical issues with

[21] In preparing arguments for this section, I would like to acknowledge Frank Abbott for his insightful comments.

[22] World Wide Web.

this[23]. Further, academic staff are also increasingly pushed for time as they face more and more cuts in staffing. Together with other factors such as growing scepticism about new management strategies, 'interference' in educational developments and the overall confidence in university management, new innovative ideas are not always welcome.

Finally, I am not suggesting that conventional universities are not good at on-line development and distance-learning. There are some excellent examples of university engagement into distance courses all over the UK. Most higher education institutions have in fact invested much money into the development of e-learning mechanisms and even opened up specialist departments to deal with this. However, as argued above, the main difference remains that, whilst for distance-learning universities this is a condition of learning and teaching, this is not the case with conventional universities.

To refer to MacKeogh and Fox (2009) again, whilst conventional universities have grand visions of entering into the e-world of distance-learning, "the realisation of this vision of ubiquitous and lifelong access to higher education requires that a fully articulated e-learning strategy aims to have a 'transformative' rather than just a 'sustaining' effect on teaching functions carried out in traditional universities. In order words, rather than just facilitating universities to improve their teaching, e-learning should transform how universities currently teach." (p147). This transformation requires conventional institutions to reassess their very structures, strategies and policies from rigid to more flexible, for instance, with entry requirements, modes of study and teaching. You cannot just take conventional teaching and learning methods and hope they fit equally with distance-learning trends, but need to implement newer arrangements such as with accreditation, assessments, cross-institutional collaborations, and an all-out commitment to value students both on and off the campus in equal measure. This is backed up by Russella (2009 p 3) who argues that her study on the framework for managing e-learning adoption in campus universities suggests that "systemic transformation of a university's learning and teaching requires coordinated change across activities that have traditionally been managed separately in campus universities. Without such coordination, established ways of organising learning and teaching will reassert themselves, as support staff and lecturers seek to optimise their own work locally."

[23] For instance, how much information does a student retain during one/two hour lecture session? What is the educational value of someone standing in front of the class with facts and information, often without further classroom interaction?

The LECHE project

I heavily rely on and borrow the following project summary and details from the LECHE website **http://www.LECHE.open.ac.uk**. As it reads here, the LECHE project is an 'interdisciplinary e-module development and virtual mobility project' which 'concerns education and lifelong learning in relation to climate change, to contribute to an informed and active European citizenry and to inform EU policy on this major challenge. Focusing on the lived experiences of climate change - how individuals, communities and organisations conceive and respond to its perceived local impacts (e.g. extreme weather, biodiversity changes) – the project complements other work in the area. Through collaboration between nine participating institutions, designing innovative teaching modules and a virtual learning space, it aims to create a European community of scholars, students and citizens who collectively make a major contribution to the United Nations decade on education for sustainable development.'

The programme is pitched at a Masters level which complements existing post-graduate provision in the area, with consortium members free to use or adapt the content within their own programmes, through their own accreditation processes. The learning modules which the project is creating have two uses- either as open educational resources which are used for student support and general interest without assessment or accreditation, or as formally assessed and accredited modules to build up a degree along with other conventional modules of partner institutions. The modules and other educational resources are stored in a virtual learning space which also provides for learning communities and virtual mobility across the institutions.

The project aims to deliver five sets of postgraduate resources:

a) Teaching module: An introduction to climate change in the context of sustainable development

b) Teaching module: Comparing the experience of climate change in the global South and North

c) Teaching module: Interdisciplinary research methods for investigating the lived experience of climate change

d) A Masters dissertation package based on the virtual learning space containing a repository of suggested dissertation topics; hyperlinks to existing local, national and regional projects on climate change and their databases; and a repository of Masters' dissertations in the area and

e) A virtual mobility package based on the virtual learning space with a moderated virtual classroom for students and tutors/supervisors; a moderated virtual café which expands access to citizens and organisations who might be the subject of dissertation projects, allowing for a dialogue on climate change between citizens and academia; and on-going monitoring of the package.

Currently the project is in the phase of writing up the teaching modules which will shortly be piloted within the virtual mobility package in order to evaluate student learning and teaching.

Additionally the project aims to disseminate research and teaching issues that arise as the project progresses. It also expects to input into policy and contribute to a European dialogue in meeting the challenge of sustainable development.

The project is led by the The Open University (UK) and partners include University of Derby (UK), FernUniversität in Hagen (Germany), Universidad Nacional de Educación a Distancia (Spain), Open Universiteit Nederland (Netherlands), Universidade Aberta (Portugal), European Association of Distance Teaching Universities (Netherlands), Katholieke Universiteit Leuven (Belgium), Wageningen University (Netherlands).

Conventional and distance university collaboration at a European level

Prior to the start of the discussion here, I wish to clarify that, whilst there are three conventional universities (Leuven, Wageningen and Derby) on the project, what I suggest in this section refers to my individual perspective only as I have not had the opportunity to confer on this with others on the project. I am therefore viewing this collaboration from my personal point of view which arises from my experience teaching in a new 'modern' university (Derby) in the UK.

However, my individual perspective is also shaped by the fact that I have been both an under- and a post-graduate (PhD) student with the OU. In addition I have also held appointments as a Research Fellow, an Associate Lecturer and have taught on various on-line modules for the OU together with acting as a consultant and writing some distant-learning course materials for it. I have therefore been lucky enough to enter the project with knowledge of both conventional and distant-learning methods, at least at a UK level. Whist from our joint work so far, I have learnt that there are some similarities with the UK experience, there are also differences between working in a European partnership at a much wider level of cultural and academic context. To discuss this, I will reflect on my personal experience of some of the processes that have gone into meeting the aims of the LECHE project so far.

I was invited to a project application planning meeting in Leuven (being the most convenient destination for all European partners to travel to) which was the last of several meetings of the EADTU Task Force on Sustainable Development. I joined then as someone who could offer skills to lead a module on interdisciplinary research methods. At this stage, neither was I clear what the project was wholly about, and in fact felt out of depth in the grand surroundings of the Leuven Katholique University plus leading academics that I met as a group for the first time! The first thing that struck me was that we all had familiar academic titles (Professors, Readers, lecturers) but these all meant different things and gave different rankings across the proposed partnership universities. At home, in a conventional university set-up this would have been much easier to fathom and the hierarchies would be much clearer. It was, however, apparent that some academics that were present held very senior management posts, yet everyone appeared to be working as a team, equally participating in workshops to develop the funding application and the research questions. From my experience with the OU, it seems to me that team work is engrained in a distance-learning culture right from the start and the planning is not top-heavy as is mostly the case with the conventional university set-up that I am familiar with[24]. Thus when a plan was formed to apply for funding, everyone's disciplinary background and specialist skills had a clear niche in the project whilst at the same time, workshop discussions opened up new ideas and approaches.

[24] This is not to say that conventional universities do not attempt the 'breaking into workshops and discuss' mode, but compared to distant university teams, this is very confined (often to 'awaydays'), and lacks the team spirit as a) this is often led from central administration and 'everyone knows' that whatever results, decisions will be made by central management rather than academics, and b) hierarchies appear to determine whose points are most valid rather than fresh ideas!

Once the application was successful[25], the next meeting involved the working out of financial and other arrangements between the partners. This is where working in a conventional university created problems for me as the project started in October, a very busy term time for a conventional university which starts its academic year in September. This made it very difficult to get away whilst it was easier for distance-teaching institutions that do not teach undergraduates on campus and also have differing term times. This meeting also identified differing models of accreditation, and student workload expectations which needed to be rationalised and standardised for the project. There were other issues of how to develop a virtual community resource repository where students can share their views with each other in a virtual cafe.

The model of working as a team has continued in planning of the module development. Unlike at a conventional university where each lecturer is responsible for the leadership of their own modules and produces their own lecture materials and student activities, the LECHE team-working revolves around the production of the whole course. Everyone participates at one level or another, either as a leader of a particular workpackage and other associated activities, or as an author of particular sections of modules (For instance, I am leading module 3 in workpackage 3, but have also contributed to a section on Workpackage 2 which concerns the project design). A members only area has been developed on the LECHE website where all work is posted for critical comment from other members. The work is therefore transparent to all members and benefits from different disciplinary perspectives as well as different (European) pedagogical styles.

This style of working is very different from singular exercises to produce classroom materials at conventional universities. Team working to produce materials that will be in full public gaze involves a lengthy process which in fact ends up by being peer-reviewed with a critical eye at every stage of the production. Whilst at one level this is comforting because the course materials are bound to benefit from others giving critical perspectives from differing expertise, it is much harder work for the person both reviewing materials and writing them. For instance, the perspectives can arise from different writing styles, different disciplinary boundaries, different knowledge bases, and differing views of the student audience. In spite of this, the whole process of producing materials is a huge learning curve for all involved. Also, as with the OU, many of the course materials and books that are published as hard copies are sold to wider markets and it is quite common to find these being used at conventional universities across the globe as set text books[26]. Thus the materials also have to be considered for a non-distance learning market. Team working that offers the potential of peer reviews and constructive critics for producing high-quality materials is missing from conventional universities (which are often in fact submerged in underlying currents of academic rivalries).

There are many lessons to be learnt here. The first is that e-learning and distant teaching (and therefore the pedagogic practice) which are both technology led are essentially of a collaborative nature. This requires a joint discussion on how to offer students an ability to select relevant

[25] Here I am sure the team will join me in thanking the lead partner (OU UK) but especially Prof Gordon Wilson who spent hours finalising a successful bid and kept us all working to tight deadlines!

[26] For instance a book that I am very familiar with, and one which has a wide audience across universities in the throughout the world and has sold thousands of copies is Allen and Thomas (2000).

information from the vast bank available on information highways and organise it so as to make sense. This discussion crosses language and knowledge boundaries as I found on the project, and has the potential to offer a constantly expanding knowledge bank which crosses over disciplinary limits. Also the student is not seen as a passive recipient and a blank page to throw information at in a lecture mode, but one who is proactive in managing their own study and time, flexibility of credit accumulation and credit transfers, selected according to their individual interest, and being a part of a student body available in virtual spaces. These spaces also give students an ability to enhance their knowledge through gaining immediate and open access to other students, alumni, experts in the field, active researchers and practitioners - which is not always possible in conventional universities where such access is limited to formalised sessions and seminars. The fact that these resources can be made available as open resources means that a collaboration between the two types of higher education institution also has the potential of creating a European dialogue between citizens and academia, though providing open resources which can be used to enhance individual interest and knowledge (in the case of LECHE, on climate change and sustainable development) as well as support formal study.

But working as an academic based at a conventional university, the way the LECHE project has developed has highlighted problems of working in a traditional environment quite sharply for me. There is, for instance, the time pressures where I have to see students on a daily basis to sort out queries and iron out any difficulties, manage my time between teaching and work on the project, to grapple with the university's complex financial systems and procedures to obtain travel arrangements in time, and to juggle how to fit in team meetings whilst students are just beginning new terms or exam periods. There is also a sense of isolation in producing materials alone when away from the team-mode of working and a feeling that others in the department are not quite aware of what I am involved with or understand it. Most just see the visible aspects of the project, i.e. that from time to time I disappear for meetings in Europe, and some, especially those who do not seriously engage in on-line teaching or research even regard these as 'jollies'!

There are, of course, some points of critique about collaborative working. For instance, this requires significant time and commitment because of the many transactions and dialogues involved. Everything does not always run smoothly and there are misunderstandings, areas of agreement but there can also be strong disagreement on how to proceed or which format to adopt, for instance. Therefore it is inevitable that a degree of instrumentality (which may not at all appear democratic) in process is needed to get the job done.

Also, the project workshops only take place every six months only, with an enormous amount of business to get through in a day and a half. As well as the educational content and its pilot delivery (work packages WP 3 and 4), these workshops also require discussion of general management (WP1), project design (WP2), Quality (WP5), dissemination (WP6) and sustainability/exploitation after the project funding period has ended (WP7). This is possibly too much to discuss collaboratively in widely spaced meetings. Project workshops thus tend to be heavy and a lot of hard work both for host organisations and various project partners who have to travel distances to the meetings.

Furthermore, most of the discussion of module drafts has to take place asynchronously on the electronic forum between meetings. This requires a significant investment of time, possibly above

that allocated within the project. This time has to be found among the other demands on participating academics. It is possible that some will provide little or no comment, others will only comment briefly on matters of detail, leaving just a few to engage deeply with this educational content-in-the-making. In these circumstances the practice of collaborative working can depart significantly from the ideal. This does mean that the more active (or proactive) members might appear to dominate the project, rather than the fact that they are simply keen to get things moving.

Compounding the last point is the inescapable fact of power relations within collaborative working. Some participating academics, for example, do have greater authority to speak on matters of good distance teaching styles than others. It is therefore inevitable that they will take on a larger interventionist or 'advisory' role.

Nevertheless, my overall feeling about doing collaborative work is that both distance-learning and conventional universities share some commonalities of working, for example, use of PhD students and research assistants in managing workloads. However, the team spirit of distance-learning institutions is much stronger and open to newer ideas and not afraid of transparency. The organisation of this at first appears daunting, but everything such as each person's role, deadlines, expectations become clear very quickly and through the critique received at various stages of course production, the final materials have the potential to achieve world class quality. Conventional universities have a lot to learn from the way distant institutions work.

Conclusion

In summary, this paper has attempted to show firstly the different approaches to on-line teaching and learning taken by both conventional and distance-learning higher education institutes. It has then highlighted the differences in working to produce quality, lifelong learning materials and suggested why conventional universities may find the transparent and visible nature of producing and delivering teaching materials uncomfortable. Working in partnership on the LECHE project has allowed me to reflect further on the process and showed how this can lead to fruitful and productive insights, particularly for conventional universities.

As a final thought, I draw on Mark Prensky's (2010) conceptual analysis of teaching and learning for the 21st century digital age of new millennium learners. We need to somehow coordinate the learning and teaching practices of "digital natives", being those young people for whom digital technology has been a part of their growing-up process (through the internet, mobile phones, IPOD and Games technology) and the "digital immigrants" who have had to learn to adapt to this in their adult lives. Many conventional as well as distance-learning universities are currently "digital migrants", but with partnerships between the two learning modes as well as between the "natives" and "migrants", there is opportunity for all to create both effective teachers and learners.

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Achten, Mart, Van Petegem, Wim, De Gruyter, Johannes, Op de Beeck, Ilse, Vriens, Mariet, Verraest, Roman : Virtual mobility as a support for the mobile student of tomorrow

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Abstract

The importance of internationalisation in present European Higher Education is vastly increasing and the issue takes up a significant place in the agendas of educational policy makers and higher education institutions. One of the main objectives of internationalisation or international education is the development of intercultural competence or of sensitivity. From the concept of '**Virtual Mobility**', the set of ICT supported activities that realize or facilitate international, collaborative experiences in a context of teaching and/or learning, we will elaborate on the opportunities on the use of ICT in relation to internationalisation of higher education and the development of intercultural competences.

Introduction

The importance of internationalisation in present European Higher Education is vastly increasing and the issue takes up a significant place in the agendas of educational policy makers and higher education institutions. It is a conscious action, mostly in response to the challenges brought about by globalisation (Pierson, 2010, 6 & Wächter, 2008, 10). In response to this and under impulse of European and national policymaking schemes, higher education institutions in Europe have therefore embraced study abroad programmes such as Erasmus, Erasmus Mundus or Leonard as a method of preparing their students to be culturally sensitive and globally aware. Many higher education institutions have also extended such programmes by organising (aspects of) 'internationalisation at home', whereby universities integrate elements of international learning into their curricula (Crowther, 2000). One of the main objectives of internationalisation or international education is the development of intercultural competence or of sensitivity (Otten, 2000).

Yet while the process of globalization, which is also deeply characterised (and enhanced) by great advances in information and communication technologies (ICT), gave a boost to the introduction of educational technology in recent years, the use of ICT in relation to internationalisation of education

remains quite limited. The effective use of educational technology can greatly support mobility programmes, and in terms of 'internationalisation at home' ICT offers great opportunities to integrate the involvement of foreign student groups and researchers into curricula.

EuroPACE, a European non-profit association of higher education institutions, and AVNet, an educational support unit on new educational technologies of the University of Leuven, have been very active in exploring the potential of Virtual Mobility to contribute to the internationalisation of Higher Education.

In this paper we will introduce our approach to the concept of *virtual mobility*. On the basis of two international examples in a blended mobility context, we will further elaborate on the opportunities on the use of ICT in relation to internationalisation and the development of intercultural competences.

Internationalisation of European higher education and the development of intercultural competences

Recent papers, statements and policymaking schemes from the European Commission reflect the significance of internationalisation for higher education in Europe. In the Leuven Communiqué, adopted on 29 April 2009 by the Ministers in charge of higher education in the countries in the Bologna process, **international openness** and **mobility** are mentioned as higher education priorities for the decade to come. This includes for European higher education institutions to further internationalise their activities and to engage in global collaboration for sustainable development. Further, the Green Paper "Promoting the Learning Mobility of Young People" has been published to open up the debate to stakeholders and the wider public. In this publication it is stated that learning mobility should become a natural feature of being European and an opportunity to all young people.

The most-often quoted definition of internationalisation comes from the Canadian scholar Jane Knight. She describes internationalisation as "the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education." (De Wit, 2009, 6). Twenty years ago, internationalisation was, for most observers, almost, if not fully, identical with the mobility of students (and, to a lesser extent, faculty) across country borders (Wächter, 2008, 1). Probably one of the best known and successful examples of mobility programmes of the European Commission is Erasmus. In the year 2009, a total of 2 million students had participated in the Erasmus programme since its launch in 1987.[27] The Leuven Communiqué stipulates that "in 2020, at least 20 % of those graduating in the European Higher Education Area should have had a study or training period abroad". However, despite the success of Erasmus, still no more than 10 % of students go abroad during their study.

[27] http://ec.europa.eu/education/lifelong-learning-programme/doc80_en.htm

Another way to give students an international experience is to organise activities within the university or higher education institution. These activities are mainly referred to as *internationalisation at home*. So it is much more curriculum-oriented: preparing your students to be active in a much more globalised world. Activities under this at home dimension are: curriculum and programmes, teaching and learning processes, extracurricular activities, liaison with local cultural/ethnic groups, and research and scholarly activities (De Wit, 2009, ibid).

Giving students an intercultural dimension during their education is one of the main goals that guides present internationalisation strategies. Students have to deal with the regional/local level of growing diversity due to domestic multiculturalism. Therefore intercultural competences are considered to be beneficial for personal development and employability (Otten, 2003). As public and private organisations extend their reach into the international marketplace, they are presented with a variety of challenges and opportunities to address intercultural diversity on many levels (Friedman, 2005).

Current research on intercultural competence describes it as "the ability to understand and respond to cultural difference in increasingly sophisticated ways" (Hammer and Bennet). Three main aspects can be recognised in such an ability: changes of an individual's knowledge (cognition), attitudes (emotions) and skills (behaviours) in order to enable a positive and effective interaction with members of other cultures, both abroad and at home (Hofstede, 2005). It is assumed that the internationalisation of the processes and structures of education, which is characterised by a coming together of people with differing cultural orientations, thinking patterns, perceptions and emotions, will result in shaping all social interaction and that the teaching staff and students will have to adapt their knowledge, attitudes and skills to function in an intercultural context (Otten, 2000). Though, we have to be aware that intercultural encounters alone do not automatically increase the intercultural competence of students. Intercultural learning needs reflection of individual and collective social experiences with people from other cultures rather than the mere contact as such. This always has to be taken into account when organising internationalisation for intercultural learning (Otten, 2003).

Virtual and Blended Mobility

We believe that Virtual Mobility, enabled by the use of educational technologies and e-coaching methodologies, has a great potential to contribute to the internationalisation of higher education. It could serve as a complement to the traditional mobility programmes in order to better prepare, support and follow-up physically mobile students and so contribute to the objective of the European Commission to increase the number of students taking part in the Erasmus Programme up to 3 million by 2020[28].On the other hand, the use of ICT for internationalisation could also greatly enlarge

[28] European Council. *A strategic framework for European cooperation in education and training ("ET 2020"): Conclusions* (May 2009). Downloaded from: **http://ec.europa.eu/education/lifelong-learning-policy/doc1120_en.htm**

the group of students who would be exposed to an intercultural experience even if they do not move physically. In this part we describe what we mean by virtual mobility and the different types we can distinct.

What is Virtual Mobility?

The elearningeuropa.info web portal defines virtual mobility as follows "Virtual Mobility stands for the use of information and communication technologies (ICT) to obtain the same benefits as one would have with physical mobility but without the need to travel".[29] This definition emphasizes the new possibilities that are created through the use of information and communication technologies. Virtual mobility can indeed make it possible for students to take part in courses at other universities without having to leave their home university.

The Being Mobile project opted for a more elaborate definition, placing more emphasis on intercultural aspects and pointing out the richness of the experience and the similarities with the Erasmus exchange programme: „Virtual Mobility is a form of learning which consists of virtual components through an ICT supported learning environment that includes cross-border collaboration with people from different backgrounds and cultures working and studying together, having, as its main purpose, the enhancement of intercultural understanding and the exchange of knowledge." (Bijnens et al., 2006).

Based on our experiences in past and recent projects, we would like to re-think certain elements of the previously quoted definitions. We think of Virtual Mobility as "**the set of ICT supported activities that realize or facilitate international, collaborative experiences in a context of teaching and/or learning**".

We will now look briefly into the different key concepts of this working definition:

ICT supported activities:

> The activities are enabled through the use of educational technologies. The activities can be either fully virtual (*realizing*) or blended (*facilitating*). In case of the latter, when aspects of virtual and physical mobility are being combined, in order to maximise the advantages of both, it is also defined as **blended mobility**.
>
> ICT for virtual mobility can include video and web conferencing, (discussion) forum, VLE, chat, blogs, Wikis, document sharing tools, negotiation tools, ...

Context of teaching and/or learning

[29] See 'Virtual Mobility' at the 'elearningeuropa.info' portal **http://www.elearningeuropa.info**

Virtual Mobility is about teaching and learning (pedagogical) and all the activities that support it, *e.*g. administrative, organisational, logistical issues.

International:

Virtual Mobility is specifically about cross-border activities between different educational institutions from different countries. Such activities are subsequently intercultural in nature.

Therefore it is about providing students or staff an international experience with an intercultural learning component. This concerns two objectives:

- A cognitive objective (*e.g.* language proficiency, international business skills, knowledge of the culture of China, etc.)
- An attitude-related objective (*e.g.* understanding of and respect for other people and their values, viewpoints and ways of living, understanding of the nature of racism) (Nilsson, 2000, 23)

Collaborative:

Virtual Mobility places a particular emphasis on collaboration because it is about more than just interaction between different partners. It is about true cooperation or collaboration. Virtual Mobility activities enable collaborative learning, i.e. learning from and with each other. This aspect of Virtual Mobility is considered to be essential in relation to developing intercultural competences and/or sensitivity.

Experiences:

Experience as a general concept can be defined as follows: Active participation in events or activities, leading to the accumulation of knowledge, skills in or observation of something. [Wikipedia]

Virtual Mobility is about the knowledge of, skills in or observation of international differences/similarities gained through active participation in an ICT supported, international event.

Types

Based on this definition, Virtual Mobility activities can be categorized as follows:

- Related to international student or staff exchanges
    - Virtual Mobility to facilitate a physical international exchange (blended)

- Virtual Mobility to realize an international exchange, i.e. the student follows substantial parts of a programme at a distance, supported via ICT (virtual)

- Related to international internships[30]
  - Virtual Mobility to facilitate physical international internships (blended)
  - Virtual Mobility to realize international internships (virtual)

- Related to an internationalised curriculum:
  - Virtual Mobility as a scenario to internationalise a (part of a) course (chapter, exercise, task, project), programme, workshop, seminar, … This category can be either fully virtual or blended.

International examples

In the following sections two international examples of Virtual Mobility activities are described. Both cases are taking place in a blended context, i.e. Virtual Mobility *facilitating* physical mobility. At the same time, they show how internationalisation at home can be organised through the effective use of new educational technologies.

The Virtual Buddy System - KHLeuven

The VM-BASE (Virtual Mobility Before and After Student Exchanges) project aimed at enhancing the impact and efficiency of the Erasmus programme through the set-up of and support for a full-fletched Erasmus action. The focus in this project was more specifically on 'blended actions' where Virtual Mobility is used for both preparatory and return initiatives. VM-BASE supported students and teachers in coaching at a distance for both preparatory and return initiatives in blended format. Both EuroPACE (project coordination) and AVNet-K.U.Leuven (partner) were part of the project consortium.

The Virtual Buddy System (Op de Beeck et al., 2008, 89 - 97) was a pilot organised by the Katholieke Hogeschool Leuven (KHLeuven). The main aims for setting up the system were to gather information on the students' needs related to physical exchanges (what information do they need, when should it be provided and by whom), trying to involve students of the host institution more actively in the process of getting information about the cultural, educational and practical aspects of the exchange and to encourage personal contacts between students of the two institutions involved in the exchange. More concretely, KHLeuven developed a 'matchmaking service' to link incoming students

[30] For virtual mobility related to international internships we would like to refer to the paper: De Gruyter J., Vriens M., Van Petegem W., Op de Beeck I., The EU-VIP Project: Virtual Mobility to Enhance International Work Placements, Paper presented at EADTU anual conference, 27 – 29 September in Zermatt.

already before their arrival with local students from KHLeuven. The international coordinator makes the matches and informs both parties who their buddy is and how they can reach him/her.

Figure 1 The buddy system – "Get a Buddy"

The pilot was done a first time from October 2006 until February 2007. The technology applied in this first run was e-mail. A year later a second pilot run took place. The system basically remained the same, but some new virtual components were added and the students were encouraged to not only use e-mail as a virtual means of communication, but also Skype and MSN.

The 'virtual buddies' made the integration of the incoming students easier and swifter by providing them with all necessary practical information. Especially in the period before their arrival and during the first couple of weeks of their stay the incoming students reported they felt less insecure and better taken care of. But also the buddies themselves have enjoyed a lot of the benefits of an exchange programme (practising foreign languages, building international friendships, etc.), even without having to move physically, i.e. Internationalisation at Home. Last but not least, the teachers, the International Office and the KHLeuven as such benefited from the buddy system as the buddies helped them to take care of the incoming students.

Through the introduction of the buddy system, host students are encouraged to meet and have social interaction with visiting exchange students. These encounters – virtual of face-to-face - are intercultural in nature, as it is a coming together of people with differing cultural orientations, thinking values, perceptions and emotions.

Erasmus Mundus Master of Nanoscience and Nanotechnology

The Erasmus Mundus Programme, defined as a 'co-operation and mobility programme in the field of higher education', is an initiative of the European Union that aims to enhance the quality of European higher education and to promote dialogue and understanding between people and cultures through cooperation with Third-Countries. In addition, it contributes to the development of human resources and the international cooperation capacity of Higher education institutions in Third Countries by increasing mobility between the European Union and these countries.

Erasmus Mundus Masters Programmes are organised jointly by at least 3 European HEI's located in at least three different European countries. These programmes are particularly targeted at students outside of Europe, in Asia, Africa, Oceania and America. More than 50 Masters courses have now been selected under Action I of the Erasmus Mundus Programme.

Physical mobility is a key factor in these Master's programmes. Students need to spend part of the study period in two different participating universities. This physical mobility can be complemented with Virtual Mobility activities during the study period, including virtual support of student selection, online/blended courses and seminars, guiding Masters' theses over a distance and (extended) access to facilities.

For this paper we will present the Erasmus Mundus Master of Nanoscience and Nanotechnology (EMM Nano) and demonstrate how they internationalise their curriculum through video conferencing.[31] The EMM Nano is organised by a consortium of four higher education institutions:

- Katholieke Universiteit Leuven (K.U.Leuven), Belgium
- Chalmers Tekniska Högskola (Chalmers), Sweden
- Université Joseph Fourier Grenoble, France
- Technische Universität Dresden (TU Dresden), Germany

As part of the educational programme, a Lecture Series on Nanotechnology in Modern Society are organized on a monthly basis by the consortium partners, given by national and international experts on subjects such as "ethics of nanotechnology developments", "opportunities for nanotechnology applications" and "the risks of nanotechnology". The lectures are broadcasted through video conferencing to the four consortium partners.

[31] http://www.emm-nano.org/

Figure 2: Example of Streaming from Lecture 4 – Lecture Series on Nanotechnology in Modern Society

Figure 2 shows a snapshot of lecture 4 from the lecture series in the academic year 2009 – 2010. Prof. Shlomo Yitzchaik from the Institute of Chemistry, and the Krueger Family Center for Nanoscience and Nanotechnology of The Hebrew University of Jerusalem was invited to give a lecture about Chemical Interfaces in Neuroelectronic Hybrids.

A lecture typically consists of a speaker in one of the participating locations with afterwards the opportunity for questions. The lectures are recorded with AVNet's lecture capture solution and made available for current and prospective students in participating universities. Afterwards, the recordings of the lecture are made available through streaming video in the electronic learning platform Toledo and on a custom website for interested parties not enrolled in the platform. AVNet's solution provided the opportunity to record presentations given on remote sites and even multipoint video conference discussions. In the first year of the Master Programme, the students follow a common program at the K.U.Leuven and consequently the turnout for these sessions at AVNet-K.U.Leuven was very high. Other locations had a variable turnout depending on the subject discusses by the guest speaker.

Organising a lecture series such as this, gave much added value to the whole programme. All participating students in the programme were brought together physically, even though they were located at different partner universities. It also gave the opportunity to put the focus on the expertise of the different consortium universities and individual teachers at these institutions. At the same time, there is also the opportunity to invite experts in the field as guest speakers from all over the world (REVE Project, 2006). In this way, the lectures are also appropriate for intercultural learning. By inviting an expert with a different background and culture, students have the opportunity to study the subject from another perspective. This can lead to more intercultural sensitivity.

Conclusion

European higher education institutions face the challenge of further internationalising their education. In this paper we distinguished two ways of internationalisation:

- Abroad including all forms of education across borders: mobility of students and faculty, and mobility in projects and programs
- At home: those internationalisation activities that happen within the borders of the institution.

With two international examples we demonstrated that there is a great potential for Virtual Mobility to contribute to the internationalisation of higher education. It can either serve as a complement for physical mobility programmes or it can be used to organise internationalisation at home.

However, until now the use of ICT in relation to internationalisation of education remains quite limited. Virtual Mobility does not get the recognition it deserves. We have now come to a point where the use of new educational technologies should be embedded in 'mainstream' mobility actions and internationalisation of higher education. This creates a need for new competences at individual and organisational level. Individuals will need to be able to adapt flexibly to a rapidly changing and highly interconnected world.

Building further on the expertise we gained through the participation in several Virtual Mobility projects, we will therefore continue to engage ourselves in sharing knowledge and disseminating innovative initiatives, in order to keep Virtual Mobility high on the agenda of the different European stakeholders.

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Through the Move-IT project website, and by organising seminars and other events, the project enables the exchange of outcomes and results from former projects in order to disseminate best-practices and to stimulate the implementation of virtual mobility in mainstream education.

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Bertrand, Louise: Cooperation between a distance teaching university and an on-campus university : the creation of a dual-mode university[32]

Télé-université

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Abstract

Universities are placed today in front of stimulating and disruptive perspectives. Important factors of transformation are present; among them, the development of information technologies is certainly a major one. Information technologies offer new tools of an unprecedented power that modify significantly the environment of access to knowledge. The relation to knowledge the university has to give to the student must be radically transformed to take into account these fundamental technological and cultural changes. Distance teaching universities and on-campus universities can collaborate to arouse a new university where the dual mode allows to take advantage of the power of the distance education without deny the fulfillments made possible by on-campus education.

However, experiments of creation of dual-mode universities are relatively uncommon and difficult. I was rector of Télé-université when it merged in the University of Québec in Montréal in 2005. Five years later, the results are not what we were hoping for. It makes me conclude that certain indispensable conditions must be present to insure the success of such a merge. I shall elaborate them in this presentation.

Introduction

In the closing decades of the 20th century and the first decade of the 21st century, the conditions in which universities exist and grow witnessed major upheavals: a decrease in the power of the governments on which non-profit university funding depends; a shrinkage in funding that has led to the measurement of "university performance" in a quest for economic viability; the pervasiveness of the consumer society and of individualism; and, above all, a veritable revolution sparked by the development of information and communications technologies (ICT). The scope of this revolution, through the social, economic and cultural turmoil it produces, is unparalleled. Some fundamental factors of transformation have been at work in recent decades: universal access to information and knowledge, Internet-facilitated openness and collaboration for knowledge production and the existence of multiple networks of continually evolving relations.

[32] This article is largely drawn from the material in a work published in spring 2010, on the University in the 21st century.

The advent of ICT has produced profound changes in the way minds learn and process knowledge (short-term memory management through multitasking or breaking the chronological sequences of learning through hypertextuality, for example), in particular among the new generations of students whose cognitive development was influenced by these technologies. It is the very process of acquiring knowledge that is fundamentally transformed, making the emergence of ITC an epistemological revolution of a scale equivalent to that produced by the invention of the printing press. The extent of this upheaval has not yet been fully evaluated. The number of its manifestations, and their spin-off effects, is growing exponentially.

Knowledge institutions par excellence, universities are at the heart of this revolution that places knowledge at the forefront as a vector of development. They must adjust the accomplishment of their fundamental teaching and research missions to these new realities. Yet they are struggling to adapt their secular structures at the pace required by the advent of what Manuel Castells calls the "network society,"33 which requires flexibility and adaptability from organizational structures.

Some timid measures have been taken to integrate ICT in traditional university teaching but they are hugely inadequate. After all, it is not simply a new tool that is being added, but rather a whole new way of acquiring knowledge. ICT are much more than a tool that must be taken into account by including certain functionalities at the periphery of teaching and learning acts. Their functioning in multiple interdependent networks constitutes a fundamental structural change in a number of individual or collective processes, including that of knowledge acquisition.

Universities face a sizeable challenge to improve the quality of pedagogical models by adapting them to the reality of cybersociety and to promote accessibility to university teaching. To meet this challenge, some experiments, though few in number it is true, linking traditional universities and distance universities in a single institution have been attempted, especially in Quebec. In this paper, I will briefly describe the experience of making the Télé-université an autonomous unit within the Université du Québec à Montréal. But first, I will explain why I believe changes in traditional university teaching models are necessary and urgent.

Relation to knowledge and knowledge society

The technological developments of the last few decades have made available to knowledge some extraordinarily powerful tools that significantly modify the access to knowledge environment and

[33] Castells describes the network society as being a social model of networks in constant evolution and therefore open, rather than a closed systemic model. The network has no centre. It is composed of interrelated nodes of varying importance and of focal centres around which revolve certain processes. For further details, the reader is invited to consult in particular:

Castells, Manuel, 1996, *The Rise of the Network Society*, Oxford: Blackwell Publishers.

Castells, Manuel, 1997, *The Power of Identity*, Oxford: Blackwell Publishers.

Castells, Manuel, 2000, *End of Millennium*, Oxford: Blackwell Publishers.

the process of knowledge acquisition itself. These developments accelerate the appearance of mutations that oblige universities to transform the relation to knowledge, meaning that relation which it is their mission to establish between a subject – the student – and a body of scientific knowledge, soft skills and hard skills, by employing all the means at their disposal to ensure the success of this relation. Universities give access to knowledge, not just information, making available to students, not only the objects of knowledge, but also the devices that allow them, through their own action on these objects, to interiorize a formalized body of knowledge and to transform it into personal knowledge.

In the 20th century, universities used two teaching methods: classroom teaching, a method introduced when universities were first founded in the 12th century, and distance teaching, which I define, for present purposes, as any teaching that is done without the simultaneous physical presence of the student and the teacher in an assigned place – such as a classroom – thus distinguishing it from classroom teaching. Distance teaching can therefore be synchronous or asynchronous (in real or non-real time), can use oral and/or written discourse and all possible supports from paper to the Internet. This teaching method was first conceived in the 1930s but experienced rapid growth during the '70s. Distance teaching developed then to serve populations traditionally excluded from attending university. It has since grown considerably throughout the world, with less-developed countries and very densely populated countries seeing it as a way to broaden access to studies and to bridge the "knowledge gap."

By the end of the 20th century, information and communications technologies had propelled distance teaching into the foreground, making it the first choice of a growing segment of the young generation of university students who find it is a way to relate to knowledge that harmonizes with their lifestyle.

The relation to knowledge has been profoundly transformed by the arrival of information technologies, resulting in the transition from a society and a culture essentially founded on the oral and the written to a cyberculture. The oral tradition, on which universities are based, persists to the present day. Some consider this tradition to be the sine qua non condition of a quality education, with its direct contact with teachers, dialogue with peers, and presence of all concerned in the same physical space dedicated to and identified with the prestige of a university. Oral culture remains the basis of the traditional university. One finds the same teacher, at the same time, on the same day, in the same room, with the same group of students, sharing the values of their alma mater, discussing, arguing and simultaneously developing knowledge about one another in this specific context. This is what characterizes classroom teaching. Here, university traditions are perpetuated, not only by the discourse, but also by the behaviours allowed, the common referents. The relation to knowledge is mainly unidirectional, meaning transmitted by one person, acquired by another. This type of relation to knowledge is based on a limited access to knowledge, since the number of students that a teacher can accept for a class session, although it has increased considerably in the last few decades, nevertheless presents an undeniable physical constraint.

Distance teaching is founded on the written culture. Students work in their personal or occupational physical space, using a pedagogical process and material designed for independent learning. The teacher's role in a distance university is to design and supervise the production of the learning

process and the pedagogical material, with the help of a team usually composed of specialists in distance education and the production of instructional documents. Teachers are not necessarily in direct contact with students, but they usually provide for the training of tutors who are in charge of supervising students in their independent study. There are very few intermediaries between the students and the knowledge to be acquired, represented by the instructional material they are given. Contrary to classroom teaching, distance teaching presents no intrinsic limit with regard to access to knowledge. The great flexibility of the model developed by distance universities allows students to enter into a relation to knowledge at a time and place of their choosing. In addition, this model is easily extendable to an unlimited number of students.

Since the early 1990s, the development of information and communications technologies has made available to distance teaching ever more performing tools to build a "virtual campus," a space that can be defined, borrowing from Pierre Levy34, as a metaphoric space of interconnectivity among the different actors in the university community. Distance teaching, or e-learning in its new incarnation, is little by little catching up with the cyberculture. Virtual campuses offer "meeting places" to their students. Students are in contact with one another; they discuss, argue, share. Direct contact with the teacher is facilitated by synchronous or asynchronous communication tools. It has been observed that the personalized link with the teacher or the tutor encourages students to express themselves, students who, for various reasons, would say little or nothing in a classroom. Group discussions are made possible thanks to communication tools, collaborative work tools, increasingly sophisticated learning environments and the use of ever-expanding virtual worlds.

In this 21st century society, information and knowledge are expanding and becoming available on a continuous basis. The relation to knowledge, previously limited to the physical presence of the teacher, can be assured by ever progressing new technological means, making way for new relations and new forms of contact between teachers and students. Students have a great deal of flexibility and possibilities to arrange their learning activities, both in form and in time.

The challenge for universities is to make the most of these many possibilities by positioning themselves within the new social realities of the cyberculture. They must take into account the growing diversity of the socio-demographic profiles of the university population to offer every student individually adapted teaching. They must in particular consider the very different social behaviour of the new generation of university students, the so-called digital natives35, a generation whose mastery of technologies and ability to adapt to the constant innovations at its disposal is unprecedented. This generation's behaviour is marked by a multitude of individual activities supported by the technologies that allow it to be and to act, by and for itself, in cyberspace, irrespective of its physical location.

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[34] Levy, Pierre, 1999, Cyberespace et cyberculture, *DIGITHUM*, Online journal of the Universitat Oberta de Catalunya.

[35] The expression "digital natives" refers to the people who are born with the technologies. It is difficult to pinpoint a precise date, but we can probably safely say the end of the 1980s was the starting point of the widespread use of the personal computer and then Internet services. The new cohorts of university students are therefore "digital natives."

This new generation finds answers to the majority of its questions on the Internet. Since sources of information and knowledge are easily accessible, it expects universities to provide immediate information processing; otherwise, it will turn to other more flexible and more up-to-date sources.

The representatives of this generation have grown up with ICT and these technologies are deeply embedded in their cognitive processes. ICT constitute an extension of human intelligence, from the mathematical processing made possible by the most basic calculator to the phenomenal memory of the Internet for bodies of knowledge now accessible from anywhere. Hence the difficulty to convince students of the need to memorize great quantities of knowledge.

The most recent information technologies permit the inclusion of images, sounds, multimedia texts (including sounds, images and videos) and hypertexts as well as all the storage, communication and creative power of the Internet. This almost limitless power of the Internet fundamentally changes the experiences on which the development of thought and knowledge is based, as has been demonstrated by research conducted in the field of New Media Learning Sciences36:

- From passive consumers of the mass medias, surfers have become active producers: creation of individual or collaborative web pages (*Wikis*), blogs, micro-blogs (*Twitter*), entries on *Facebook* or *MySpace*, video uploads on *YouTube*, the possibilities are endless;
- The Internet has changed the nature of social groups, making it easier to form spontaneous groups or to create groups from individuals who have never met one another;
- From these new possibilities and behaviours arising from new phenomena such as *Beta-reading* (a way to publish texts on the World Wide Web and to receive or give editorial feedback) or *Pro-Ams* (professional amateurs), young people, as amateurs, develop expert skills. Their passions often inspire them to pool their skills to undertake more far-reaching tasks or to solve more complex problems. For example, video game fans who develop an expertise that allows them to go beyond the game, by improving or adding to it.

We are seeing the emergence of a new form of participative culture made possible by and for Internet development. This is a major change in the nature of the experiences on which knowledge development is based. The ability to connect with others in a variety of ways has never been as great as in this process. Universities cannot disregard this change in the formal acquisition of knowledge and must, on the contrary, take advantage of it: the digital literate culture is a basic reality of the 21st century and requires totally new abilities.

For students to be able to learn and understand, universities have to build and structure the relation to knowledge. Using the most recent knowledge gained in research in their field of specialization, teachers must identify the area to be mastered by students and choose the pedagogical methods to propose for that purpose, as well as the techno-pedagogical tools best adapted to the task. They must think of a way to validate the knowledge of each student by any means that makes the relation

[36] See on this topic: Gee, J.P., 2009, Digital Media and Learning as an Emerging Field, Part 1: How We Got Here, *International Journal of Learning and Media*, vol. 1 no 2, p. 17.

to knowledge effective, stimulating and individualized. This is teachers' fundamental and primary role. A potentially unlimited access to knowledge does not automatically transform students into learners, any more than it can transform them into teachers. To transform a formal body of knowledge into personal knowledge, students must be guided in their learning. It is here that the university's specific and irreplaceable contribution resides: apart from scientific knowledge (which can be found more and more easily thanks to the Internet and to information and communications technologies), universities must design and put in place aids to support students in their knowledge development; in the Internet era more than ever, universities must find the means (the method) to allow students to learn knowledge and to give it meaning, not by relying solely on the ability of the teacher to orally transmit a content, but on the contrary, by making the most of the students' own strengths (or by compensating for their weaknesses) through an optimal combination of methods. That is the unique contribution of universities, and it would be wrong to underestimate it. Quite the contrary, the more the volume of knowledge and its availability and complexity increase, the more essential it is to support students in their process of knowledge development.

Threatened by an almost universal and instantaneous availability of knowledge, universities must focus on what makes them indispensable, that is, how they organize a relation to knowledge that is efficient, relevant and stimulating to promote a real acquisition of knowledge by the students. Although in the past we tried to improve the relation to knowledge by developing teaching methods or original ways to facilitate learning by the students, the situation today has changed completely. Universities find themselves facing a different reality: students' relation to knowledge is changing diametrically, as much in its form and its content as in the conception they have of their own knowledge, which they consider to be fundamentally dynamic. Can we still believe we teach them effectively by imposing on them a relation to knowledge that reflects neither their reality, nor the social and cultural reality of the start of the 21st century? It is the role of universities to ensure the goodness of fit of the relation to knowledge they offer to students.

University accessibility, quality and financing

At the end of the 20th century, universities were adapting satisfactorily, despite themselves, to a difficult economic situation. In the majority of cases, they remained linked to the State that provides a major part of their operating and capital budget.

The universities adopted various measures to reduce their operating and transaction costs : The course offer, in particular at the undergraduate level, was increasingly entrusted to non-permanent staff; the number of students per class climbed astronomically; the number of regular teaching positions leading to job security fell while the number of part-time positions increased dramatically.37 Everywhere, student tuition fees rose significantly.

[37] See on this topic: Schuster, Jack .H., Finkelstein, Martin J., 2006, *The American Faculty,* Baltimore: The John Hopkins University Press.

And yet, the potential of distance teaching for teaching large numbers of students remains neglected, still too often limited to populations for which it represents the only possible access to a university, and this, on the pretext that it would not offer a guarantee of sufficient quality. However, the mode of operation, whether it is classroom teaching or distance teaching, does not have value per se and must not take priority over the goal to be achieved, which is the quality of teaching through the quality of the relation to knowledge that is instituted. This being so, the persistent conflict between classroom teaching and distance teaching is astonishing, as though we were opposing classroom presence to absence, either that of the teacher or that of the student, in the transmission-acquisition of knowledge. In fact, distance teaching is not characterized by absence, but rather by a different form of teacher or student presence, enriched and strengthened by new and diversified methods that are being increasingly interwoven with those traditionally utilized in university teaching. It is not its mode of operation that defines the university nature of an education, but the entire set of requirements this education must meet. Therefore, the teaching methods must not take precedence over the purpose they serve.

The challenges of accessibility and quality are the same everywhere, and no method can today claim that its contribution has totally met them. The urgent imperative to adequately meet these challenges, in a perspective of knowledge democratization, constitutes a powerful reason to acknowledge and connect teaching methods that usually evolved in parallel. It is by fully and adequately occupying their place in this new environment that universities will preserve their integrity and ensure their long-term survival and institutional future. That is why we see appear new designations that attempt to transcend the limits of the earlier definitions and methods, designations such as dual-mode university, which combines the pedagogical tools and methods of classroom and distance education in an integrated university training, enriched with new assets that should henceforth benefit the relation to knowledge in our societies.

A promising union: the dual-mode university

The experiences of creating dual-mode universities from existing universities are few in number.[38] In Quebec, as early as 2002, the managements of the Télé-université, the Université du Québec à

[38] See on this topic:

Abrioux, D., 2006, *Strategic Issues in Single-and Dual-mode Distance Education: The Organizational Blending of Two Canadian Distance Universities*, Research Report to the Commonwealth of Learning;

Bates, A.W., 1997, The impact of technological change on open and distance learning, *Distance Education*, vol 18, no 1, pp. 93-109;

Rumble, G., 1992, The competitive vulnerability of distance teaching universities, *Open Learning*, vol. 28, no 7, pp. 31-45.

Montréal (UQAM) and the Université du Québec nevertheless began deliberations with the aim to create a large dual-mode university by making the Télé-université an autonomous unit within the UQAM. The Université du Québec network is a network of ten public universities, including the Télé-université, which was founded in 1972 and has an enrolment of 18,000 students each year; its teaching mission is carried out at a distance. UQAM, for its part, is the largest traditional university in the network with 42,000 students and is located in downtown Montréal.

The goal was twofold: to optimize the contribution of the Télé-université to the Quebec university system by facilitating access to university studies to the greatest number of students through the enrichment and expansion of the offer of distance teaching available in Quebec; and to improve the quality of the teaching offered to all students by diversifying and enriching the relation to knowledge through the use of instructional methods, techniques and tools in step with 21st century society. By creating the largest dual-mode university in the French-speaking world, this project aimed to increase access to the university and to expand and enhance the teaching methods throughout the Université du Québec network, by allowing students to combine distance teaching and classroom teaching. This formal union also made available for classroom teaching the high quality instructional materials designed for distance teaching.

Through this union, the Télé-université obtained the support of a large university, known for its creativity and its ability to innovate, with an academic heritage, a vast program and a large faculty. UQAM, with its very limited experience in distance teaching, obtained the means to spread its teaching beyond its Montréal campus.

In 2004, at the end of a long consultation and discussion process, the two institutions and the Board of Governors of the Université du Québec asked the Quebec government to allow the Télé-université to join UQAM. Additional letters patent were delivered to UQAM in 2005 specifying the legal terms under which the Télé-université was to join UQAM. A memorandum of understanding between the two institutions described the objective of the union in this way:

“The joining of the TÉLÉ-UNIVERSITÉ to UQAM aims to create an institutional base conducive to the development of distance teaching and to lay the foundations of a large, public dual-mode university able to increase the training possibilities for students in institutions of the Université du Québec network and to strengthen higher education.

(…)

It aims to create a truly public dual-mode university able to better serve the Quebec population (…).”39 [translation]

The procedure followed by the Télé-université and UQAM was in no way based on a streamlining logic but rather aimed to focus the effort of the two universities for the optimal development of

[39] *Protocole de rattachement de la Télé-université à l’UQAM*, April 2004, page 2.

distance teaching and university teaching in Quebec. The Télé-université's organizational integrity was maintained to allow it to pursue and intensify the offer of distance teaching based on the model and the expertise it had developed since 1972.

Collaborative work on the academic aspect began in 2004 and a consultation on the development of distance teaching quickly demonstrated the need to produce an experimental academic management framework under which a few course and program development projects would chart a path forward, before more permanent operating mechanisms were formalized. Indeed, this was a new type of union and the joining of the two highly different operating methods proved to be a considerable challenge.

Five years after the union, very few projects have seen the light of day and the Télé-université's union with UQAM has not produced the expected outcomes. Several factors may explain this situation, such as a financial and political crisis at UQAM in 2006, which led to an unexpected change of management in early 2007. The growing resistance of UQAM's academic community since that time may also be explained by the fact that the changes required for an effective dual modality interfered with the operating rules made by and founded on consensus and this, in a crisis situation. Last, the new leadership's lack of interest in the dual-mode university signaled the end of an innovative project that required the dedication of all the players.

Essential conditions for success

Change is difficult at universities. The transformation of a traditional university into a dual-mode university seems, today, even more desirable and possible. An external expert, mandated in the fall of 2009 by UQAM's governing board to report on the situation of the Télé-université's union with UQAM and the essential elements to move this project forward, concluded at the end of the study in January 2010:

"Through the joining of the TÉLUQ with UQAM, it was hoped to make it a university that would offer, to Quebec and the entire French-speaking world, a large number of its distance programs, in whole or in part, and a plethora of distance and hybrid courses. It was even hoped to foster, by this transformation, a real strengthening of university teaching. The documents are clear on this point. There is no need to cite them. Was this hope illusory? Was this desire only an idealistic dream? Was it an unrealistic ambition?

(…)

(…) the main items were already resolved in this matter: it was a good project and well thought out; academically, the thinking was very advanced; it had been the subject of systematic consultations, capably conducted and with convincing results; it had involved dozens and dozens of people from the two institutions; it elicited the compliance, if not the enthusiasm, of many players;

administratively, everything had not been worked out, but the foundations for future solutions had been laid."40

And the author of the report concludes:

"I am personally convinced that UQAM and the TÉLÉ-UNIVERSITÉ can both win from this project as long as they want to work together. UQAM can only move forward, even financially, by becoming the first dual-mode university in the French-speaking world, and in particular by attracting students in Quebec and by adapting to changing educational technologies. As for the Télé-université, its distance university teaching mission can only develop and be financially supported in this evolution by the union with UQAM."41 [translation]

As a privileged witness to the union of the Télé-université and UQAM, having headed the Télé-université from 2003 to 2008, I am convinced that the advent of a dual-mode university through the union of a traditional institution and a distance institution requires a certain number of sine qua non conditions:

A clear awareness and vision of the profound changes facing the university institution in 21st century society. To preserve the foundations of the university, it is essential to situate them in the new, objective conditions of today's society and, in particular, of its technological development and the new types of interpersonal relations it produces.

Faculty members themselves must support and accomplish this transformation, backed by the governing bodies of the universities.

University management must display a strong political will to adapt the relation to knowledge offered to students, by capitalizing on the many possibilities offered by ICT in the network society. Management must support the mobilization of the community to this end.

A true dual-mode university must show respect for the differences inherent to the two teaching modes that complement each other, and not manifest the desire to erase them by integrating and dissolving one to the detriment of the other.

Dual modality founded on intra and inter-university collaboration must find in governments a funding incentive to do better and more.

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[40] Gervais, Michel, 2010, *Rapport sur l'intégration de la Télé-université à l'UQAM*, pages 6 and 8.

[41] *Ibidem*, p. 17.

Conclusion

The dual-mode university possesses an unprecedented potential to promote the accessibility and the quality of university teaching. It is also a guarantee of the preservation and strengthening of the mission to produce and transmit knowledge in the same way it is a guarantee of the protection of academic freedom, inasmuch as the university's raison d'être, jeopardized by the proliferation of all sorts of technological dispensers of knowledge, finds itself reaffirmed by the recognition of its specificity, that is, the offer of a relation to knowledge designed to promote students' development of their personal knowledge and to stimulate the optimal structuring of tools, means and methods conducive to the acquisition of knowledge and to the development of its meaning.

Some people may see knowledge certification and occupational certification as a strong protection for the survival of the university institution. They would be wrong to settle for that. In the society that is now ours, everything is being done at an accelerated pace and nothing and no one can ensure that the new generations of employees and employers will always bestow the same importance on university certification. In fact, in some fields, the need for university training is already being questioned.

Thus, universities today are being urged to undergo a profound mutation to uphold their historical mission. The content, form and organization of the relation to knowledge must be revised to take into account fundamental factors introduced by the ICT revolution. Universities do not hold the monopoly on knowledge. Research findings and general and specific knowledge are flooding the Internet much faster than the university system can process it. Students have access to a wealth of easily accessible and continually updated information. Furthermore, the process of knowledge acquisition of the new generations of students is breaking new ground. They grew up with ICT and these technologies are deeply embedded in their cognitive processes. The diversity of the profiles of university students, especially with regard to age and technological skills, also requires universities to modulate the forms of relation to knowledge. Finally, flexibility in the organizational structures, which is currently lacking, is nonetheless made indispensable by the network society, imposing on universities the need to revise their modes of operation in terms of the desired final outcome: accessible, quality training, adapted to the students' reality. To perpetuate the typical structures and modes of operation of a bureaucratic model, based on the notion of the protection of acquired privileges, would challenge the survival of universities.

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Billingham, Judith: Establishing and maintaining a partnership approach with service users and carers within a distance learning programme; a nationwide approach in Wales

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Abstract

The Open University in Wales includes a partnership with employers from all locations in rural and urban in Wales. The challenge at the outset of the Degree in 2005 was to further this partnership to include service users and carers. This would encompass the requirements from a diverse, bilingual country to provide a meaningful partnership when establishing the degree and maintaining this effectively as the programme progressed.

The Care Council for Wales (the regulatory body) and the Welsh Assembly Government laid down a partnership approach for the new Degree in Social Work in 2002. This partnership would need to permeate the degree from selection of the students, learning and assessment, and, the management of the programme.

Lessons were learnt from our experience from providing a programme including service users and carers in an ad hoc advisory capacity. However, it soon became clear that what had been achieved in the past did not meet the more specific requirements both in terms of formal requirements of a degree programme in Wales, but also as a 'moral' or professional values led approach.

Working at a national level brought additional challenges in organisational terms. "We had to start from somewhere". The initial group of four in a small South Wales valley town establishing the initial working remits and documentation for service users and carers participation in the degree. The work included vital input to the validation of the programme ensuring the ethos of the programme was firmly established and included as evidence in the validation documents. Since that time an all Wales approach working with service users and carers in different locations and at different levels has been established.

This paper is as a case study describing the creation of policies and procedures to fulfil the requirements for the programme, the pitfalls and achievements within the validation processes and ongoing management and new approaches. Background information from others experience was researched and is reviewed throughout. More over working with service users and carers is about working with individuals who have their own stories to tell; some of these stories are included.

Introduction and Context

The Open University (OU) was the first distance learning university (Perry 1976), providing flexible routes to academic qualification registering students in 1970 (OU 2008). In 1997 the Faculty of Health and Social Care launched its first professional programme; the Diploma in Social Work. This was challenging as the qualification required professional recognition from the regulatory body in addition to academic validation. The OU presented the Diploma in England, Scotland and Wales until this was superseded by the new professionally recognised qualification, the BA (Hons) Social Work in 2005. Within this distance learning model students are sponsored by their employer and access the programme from all locations in Wales and from all fields of social work practice.

Wales is a bilingual country and is one of the four that make up the United Kingdom. It has an increasing population which stood at 2,903085 in the 2001 census (Davies et al 2008) Although the Welsh language has long established roots it did not gain equality with English until 1993 (Welsh language Act 1993) The National Assembly for Wales established in 1999 provided a limited form of devolution. As such the Assembly did not have primary legislative powers but rather administrative functions acting in an advisory capacity to Westminster. Enhanced legislative powers were gained in 2006 (the Government of Wales Act 2006) providing a secure base for further development. Within the powers of a devolved government the Assembly creates appropriate policies and strategic approaches that reflect the requirements of the people of Wales. For social work education this has meant implementing the standards created UK wide but provided within a Welsh framework (CCW 2005). This includes working in partnership with all stakeholders including employers, students and service users and carers.

Partnership with Service Users and Carers: Getting started

The imperative to start should have been seen as 'good practice' or as 'morally sound' for a social work programme that needed to reflect the Code of Practice for Social Care Workers (CCW 2004) enshrining appropriate values and standards. However the urgency to begin came from the need for partnership for the programme to gain professional validation. As this was a new requirement there was little written about involving service users or carers or guidelines. Support systems for staff or students in working within such a partnership did not exist and information about previous attempts within the university or elsewhere usually reflected on involvement rather than a full partnership expected by the Wales Framework (CCW 2005).

We needed to start from somewhere! We already had a secure partnership with employers (from providing the previous Diploma), and it was their support and access to service users that helped. A small group of four service users and carers provided the base and input to developing the necessary processes and contents to start.

The initial input was intense. Those involved were totally committed to fulfilling the tasks required, the most urgent being creating a selection process for students that could be instigated throughout Wales. The process needed to uphold equality for all students no matter where they were located or who they were employed by. Other service users or carers were included in developing the distance learning materials including recording their experiences and opinions within CD ROM recordings, critical reading printed materials, and engaging with staff in developing policies and structures to support the degree.

A strategy for working with service users and carers was then introduced in 2006 by the Care Council for Wales (CCW 2006). It is an ongoing strategy and is used for the formal annual monitoring. This is now the basis for our planning and evaluating our outcomes providing a clear steer for managing the partnership. Further texts and guidelines have since been written following other programmes and service providers experience; these are referred to within this paper.

From the initial stages it was agreed by the Wales Programme Partnership (WPP) who manage the degree that service users and carers should be core to all of the activities including selection of students, teaching, assessment and management. The intent was to include service users as full partners rather than advisers to inform the programme (Angle & Ramon 2004, Molyneux & Irvine 2004). This was a learning process for all involved, and it was important to share skills and experience in a way that was empowering and showed respect for what each could bring. The way in which we worked was as a 'Learning Organisation' (Maynard 2010) empowering each other and focusing on people's capabilities and knowledge (Jones 2010) to fulfil the tasks needed to establish the programme. This method of work has continued with an annual review and planning cycle.

All stakeholders within the programme could be recognised as service users or carers at any stage in their lives:

"In one sense we are all service users whether we have used care services in the past or use them now or in the future for ourselves, our families and friends" (Connelly and Seden 2003).

However it was agreed that those who were representing the views as service users and carers brought their unique perspectives within their role and others worked from their academic or practice background. In addition the service users and carers wanted to include members known to themselves or partner agencies to join the group as individuals rather than representatives from specified organisations who may have their own political agenda. As such the majority of members were included by a 'snowball' effect with the momentum gathering as the structure was established. One example was a service user who needed to come to the meeting with her mother as there was no alternative care available. From that occasion on she was welcomed into the group as a member in her own right taking an active role as an adult with learning disabilities.

Lively debates were often fruitful in creating new approaches. One particular event included a service user and a carer developing questions for the student selection process whilst I wrote them down in some semblance of order at double quick speed to keep up with their thinking and reflections.

From those early stages confidentiality and working respectfully valuing each other was uppermost even though it was some time before policies and methods to ensure this for the future were established. It was rather the positive attitude and shared values that came to the fore to ensure differences and preconceived ideas could be addressed or worked with. Young et al (2007) recognised rights and theory embodied in policies do not always lead to partnership, but rather the values embedding what is written down. The lessons learnt were invaluable during these early stages, and this basis of mutual respect remains important when identifying individuals' skills, confidence, support needs, availability, mistakes when they occur and how they can be overcome.

Taking a lead

As structures and methods of work were created it was crucial to recognise the importance of leadership and management. This took me some time to recognise as I mistakenly withdrew from making some decisions thinking the service users and carers would not expect this of me. In clarifying our roles and responsibilities I began to gain a better understanding of how leadership exercised with the appropriate values can provide an inclusive approach giving support and grounding to the work and encouragement for individuals in a 'safe' working environment.

'Listening' a key social work skill is often undervalued in modern social work where formal assessments and form filling appears to take president (Billingham & Roberts p30 2001). I needed to listen carefully to what people were saying, including their silences, what they were not saying, willingness to participate or always having something else more important to do, and by just recognising that taking part for some was a new and exciting part in their lives or for some it was something they were happy to join in the short term.

Support systems have been created jointly. Welcome packs have developed over time and are continually up dated and new ideas included. Less obvious support has included meetings to ensure individuals have appropriate information for whatever task required of them. Additional help for specific purposes or for individuals with particular needs is ongoing and recognised when new opportunities or challenges arise. One member with learning difficulties gains her confidence from individual preparation before meetings, and others have allocated staff members to sit with who will give additional help if it is necessary. Such help given in a respectful manner encourages service users and carers within situations that could appear exclusive or beyond their conceived capabilities.

In what can seem like a 'protecting role' tact and diplomacy is necessary to ensure service users or carers are not patronised or their role diminished. This is particularly important when service users or carers can be over worked and expected to undertake roles that are inappropriate. In particular our policy for equal pay for service users or carers and other temporary staff has needed to be upheld when tasks have been identified external to the university by other institutions and agencies who have wanted our service users or carers to take part in initiates without pay.

There have been occasions when mistakes were made, individuals skills not matched appropriately and a lack of understanding of how inclusion and participation can be achieved. Originally my enthusiasm for participation led me to want to include a service user or carer in their physical

presence in all we did. I had to learn that inclusion can mean working outside meetings to gain opinions, and that certain groups of service users may participate better and give clearer opinions from within their own group meetings where they could gain confidence from each other. This is an ongoing challenge as we have begun to recognise the importance of involving service users whose voices are seldom heard (Hernandez et al 2010).

I also learnt alongside one of our service users that in certain circumstances just by being present in a meeting a service user or a carer can change the emphasis of a discussion or decision. The importance being; decisions are being made with the end user present. As the programme developed over time this was particularly evident within the WPP. The chair recognised the change in pace, the way in which issues were discussed and the importance made of how all involved needed to understand the contents and processes. The use of language and jargon was addressed and also different words were recognised as making difference emphasis. This not only made the meetings more inclusive to service users or carers it also enabled others present who may not have always fully understood a meaning or emphasis within a discussion. More recently I have been made aware of using the term service user **and** carers or service users **or** carers to ensure different emphasise in specific circumstances when the needs r opinions of both are different. This was emphasised by Harrison (2006) who discusses language constructing particular versions of reality and meanings that are not fixed with different assumptions and beliefs. To help in this process a 'Jargon buster' was created for use in all meetings that ensures mutual meanings for terms used.

Within distance learning covering a wide geographical area it has been important to develop a method of work to include people at different levels and in different locations. The current group having evolved by 'snowballing' ensured a wide representation from all the corners in Wales including those from rural and urban locations. To include different levels of commitment the group developed a pyramid of inclusion. The base includes service users and carers who may want to receive information about the activities of the group and provide opinions if they wish. A further level of involvement can include those who want to be involved short term or for specific tasks. The final group are those who are part of the core group who meet annually, and between times in local meetings. They take on specific tasks within the programme and work with staff and others in a time limited role.

Management and Administration

As the momentum gathered speed the work needed to be managed within a structure if it would have longevity. At the same time we wanted the values we adopted at the beginning to be enshrined in what was to be achieved long term. Rob Mackay (2007) in discussing empowerment identified three issues including Exit, Voice and Rights. This could be reflected on in terms of service user or carer involvement at different stages.

Exit: Individuals can choose when or how they want to be involved and after our earlier experience a statement on leaving the group has given a clear steer and made exiting the group a positive step in their commitment.

Voice: 'Having a say'. With different skills and experiences it has been important to ensure these are matched with the tasks required. In this the group have requested those manage to take a clear steer. This was not easy as it appeared to run contrary to the groups values; however, our experience has been that service users and carers have been empowered to use their voice effectively in situations where they feel most comfortable. In particular task centred working groups that are less formal have provided great opportunities for them to voice their opinions and effect change.

Rights: *"..entitlements are based on both legislation and service standards" (Morris 1997)*

Within the context of social work education in Wales this is enshrined in the CCW Qualification Framework (2005) and the Codes of Practice (2005). This requirement by the regulatory body alongside our programme policy of partnership ensures the rightful position of service users and carers.

Managing the tasks

Within the management process it has been important to identify what is needed to ensure ongoing work and commitment, and who will undertake what roles. Jones (2010) divides this between Management and Leadership. In facilitating the partnership with service users and carers this includes:

<u>Management:</u>

- Managing the partnership; ensuring representation throughout the programme structure;
- Ensuring appropriate administration to include service users and carers
- Monitoring the work with service users and carers; an annual task;
- Budgets; setting and monitoring the annual budget; and
- Providing the link from the service users group to the UK wide Social Work Directorate.

<u>Leadership and Operational role:</u>

- Responsible for development of ongoing work;
- Ensuring development is 'fit for purpose' in identifying appropriate goals and methods to achieve outcomes;
- Preparation and facilitating initiatives;
- Providing support and training for service users or carers; and
- Providing feedback and information to others in the programme to monitor progress.

These roles have now been divided between two members of staff. The management role ensures the work is undertaken and responds to funders monitoring requirements, while the leader takes on the major role of undertaking the day to day work and development of ideas and planning.

Dilemmas

Our experience as academics has been rewarding in many ways including having face to face contact again with service users and carers, sharing our experience, skills and knowledge. Alongside these rewards have arisen dilemmas very different to those experienced when in practice.

Defining our relationships and professional boundaries has been unique. I am no ones social worker, friend or relative when I meet the group or hold any other formal responsibility other than that of managing service users and carers input to the programme. As such it has been necessary to develop appropriate relationships, boundaries and responsibilities taking on expectations from service users and carers and other staff members. To help in this the group have more recently created specific guidelines, for example their role in interviewing potential students and in conducting meetings. These have created a framework to which all are committed and are something tangible giving evidence of how the group operates.

More difficult to evidence are the values and trust that have impacted on the relationships. When dilemmas or problems have occurred it is this positive working relationship that enable the sharing of information, challenging of ideas and the commitment to jointly overcoming difficulties. I personally found it very difficult when the member described earlier was absent and did not return to the group without any explanation. Other members needed to reassure me that this was OK and that it was her choice not to return or to contact us.

Payments for consultation have created difficulties. The decision to pay an equal sum for service users or carers and staff consultation was the easy part. The difficulty was finding appropriate administration to ensure an efficient method from an institution only use to the payment of staff or a method that ensured service users or carers benefit was not affected. It has been necessary to work with a system that includes paying one person whilst another forgoes any payment (due to their benefits), and continually trying different ways of processing claims to ensure a minimum time lag before payment or reimbursement of expenses is received.

Availability in terms of timing of meetings, locations of service users or carers and other responsibilities have needed to be taken into consideration. Individuals who are service users or carers are identified due to their particular situation. It is therefore important to take this into consideration at all times and in a manner that positively enhances their role or situation. This was important from the beginning timing meetings between one carer's responsibilities at home, and another's ability to travel distances. This caring attitude has prevailed with members of the group or individuals taking an active role of supporting each other and being open about their particular difficulties. At the same time I needed to weigh this with the other requirements of my role and the demands of a programme that needed issues addressed within specified time limits.

Conclusion

Having service users and carers involved in the programme has made an impact on how the programme is managed and the decisions that have been made. A strategic approach backed by commitment and values of inclusion has enabled our original hopes and expectations to become a reality.

The ad hoc approach with times pressures at the beginning made a significant impact with a commitment of a few laying the foundations for the positive developments of a secure partnership. Our experiences and journey to date ensures the partnership with service users is not static and that other ideas will emerge from new challenges of developing policies and legislation in social work and social care, and from widening our membership.

Within a limited staff group careful consideration of responsibilities and identifying tasks between management and leadership roles has meant that working with services users and carers has become an integral part of the staff's remit. For myself this meant letting go of an interesting and rewarding part of my work to another, and more recently reviewing our work to ensure our responsibilities are clear without overlapping or 'doubling up' of what we undertake.

A re-examination and reflection on our values has been at the fore front in our experience. Sometimes this has been examined overtly within decision making whilst at other times this has only been recognised on reflection. However, the way in which we have undertaken the work has had the greatest impact in what has been achieved. This has been brought home to us recently at the formal review of our programme with the CCW when service users and carers consistently reported that they were "treated with respect", "were listened to" "action was taken" and that they "felt valued".

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Comba, Valentina Elvira & Ossiannilsson, Ebba: A Benchmarking Exercise for Quality Blended Learning. A Challenge for European Universities in the 21st Century

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Abstract

This paper shares the experiences of 5 universities involved in a *Benchmarking Exercise on eLearning* in 2009 through ESMU. A total of 9 European universities participated in the exercise with the purpose of evaluating their existing eLearning practices and policies and getting advice on which areas to improve and how.

Initially, the paper discusses the benchmarking concept and reasons why institutions should engage in benchmarking exercises. Benchmarking is viewed as a method for quality assurance and enhancement in higher education. Self-assessment is involved at the participating institutions, which leads to a high level of awareness and understanding of existing practices and policies at different levels of the organisation. Benchmarking is thus an efficient self-improvement tool.

In chapter two, the planning of the benchmarking exercise is outlined. A combination of an individual, collaborative and expert approach to benchmarking was chosen.

Chapter three deals with the creation of the benchmarking questionnaire which was a collaborative effort between all nine participating universities, ESMU and EADTU. Taking their starting point in the online E-xellence benchmarking tool developed by EADTU, participants reformulated, deleted and added benchmarks within the following six categories: Strategic management, curriculum design,

course design, course delivery, staff support and student support. An effort was made to translate the E-xellence questions to the blended learning context of the participating universities.

The internal data collection and formulation of responses are accounted for in chapter 4 which also contains reflections on the challenges and benefits of the selected approaches.

Chapter five presents the overall conclusions of the benchmarking exercise within each of the six benchmark categories.

The final chapter discusses and provides examples of how participants can use the benchmarking results to improve existing practices and policies and outlines potential external collaboration opportunities between participants.

1. Introduction

In 2009, ESMU[42] (European Centre for Strategic Management of Universities) conducted the *Benchmarking Exercise on eLearning* with 9 European universities. This paper is a joint effort from 5 of these universities to share their experiences and to encourage other institutions to engage in similar benchmarking exercises.

The paper explains each of the phases in the benchmarking process and further discusses follow-up actions and their importance to improve the quality of teaching and learning. The paper also discusses the value of benchmarking exercises and gives specific examples of the benefits for universities.

Why benchmark on eLearning?

Quality development and evaluation make up crucial parts of the activities of educational institutions today and benchmarking has become an increasingly common method for performing quality work (Ubachs, 2009). Benchmarking deals with changes, but also with enhancement and successful implementation of new procedures and efforts (Ossiannilsson, 2010a, b, c).

Moriarty (2008) defines the method as: "*…an exemplar-driven teleological process operating within an organization with the objectives of intentionally changing an existing state of affairs into a superior state of affairs*" (Moriarty, 2008, p. 30). Moriarty & Smallman (2009) further state as follows: "*The locus of benchmarking lies between the current and desirable states of affairs and contributes to the transformation process that realizes these improvements*" (Moriarty & Smallman, 2009, p. 484). The definition used by ESMU is expressed as: "*Benchmarking is an internal organizational process which aims to improve the organization's performance by learning about possible improvements of its primary and/or support processes by looking at these processes in other, better-performing organizations*" (van Vught et al*.,* 2008, p. 16).

[42] http://www.esmu.be

Benchmarking initiatives are often conducted as self-evaluations, including systematic data and information gathering, from predefined benchmarks, as well as formulating roadmaps. The goal of benchmarking is to formulate, together with others, strengths and challenges and areas for enhancement (Ossiannilsson, 2010a; van Vught et al., 2008). The benefits can be expressed as it is defined in ten (10) statements by ESMU: "*self-assess institution, better understand the process, measure and compare, discover new ideas, obtain data to support decision-making, set targets for improvement, strengthen institutional identity, enhance reputation, respond to national performance indicators and benchmarks* and *set new standards for the sector*" (van Vught et al., 2008).

When participating in a benchmarking process, not only the *state of the art* in the investigated area and possible change potentials are obtained. In addition, awareness, both individual and collective, on the organisation itself is a result of participation, which can be considered as a direct and substantial value (Ossiannilsson, 2010a).

Often benchmarking is confused with ranking in terms of methodology and outcome in the public sector, as likewise the term "benchmarking" is widely used in the private sector as synonymous with exercises comparing company performance in regard to tenders. However, benchmarking and ranking are very different, as benchmarking is a self-improvement tool for organisations, combining the advantages of quality assurance – mainly based on self-assessment – and of experience sharing. It allows participating institutions to compare themselves with others, identify their comparative strengths and weaknesses, and learn how to improve as described in the introduction. Benchmarking is thus about identifying best practice within certain fields in order to find ways for improving existing practice, and therefore has a strong focus on development and improvement.

Rankings do not address development and improvement, but only works to give a snapshot of a certain performance at a certain time, which is then listed and ranked among others. Within the world of universities, *Academic Ranking of World Universities*[43] compiled by Shanghai Jiao Tong University and the *Times Higher Education World University Rankings*[44] are the two most prominent rankings. As rankings among universities are often of high priority in a global competitive world for many university managements, and with high direct or indirect impact on funding and student enrolment, it was important to make such differences between benchmarking and ranking very clear for all (especially management) at the outset of the benchmarking exercise.

So far, eLearning has not been the subject of benchmarking initiatives to a high extent (Ossiannilsson, 2010a; Ossianilsson & Landgren, 2010a). However the experiences from the *Benchmarking Exercise on eLearning* (BEEL) clearly show the benefits of such initiatives and emphasize the values of continuous benchmarking exercises. With this paper the participants in *BEEL* highly recommend institutions to follow and take part in such projects.

[43] **http://www.arwu.org**

[44] **http://www.timeshighereducation.co.uk/**

Participants in the exercise

Nine European universities participated in the ESMU project, *BEEL*, namely Aarhus (DK), Bologna (IT), Copenhagen (DK), Kuopio (FI), Latvia, Lund (SE), Southern Denmark (co-ordinating institution), Oulu (FI) and Porto (PO).

This paper describes and reflects on the individual steps of the benchmarking exercise. The initial planning process will be accounted for, the revision and reformulation of benchmarks are explained and the approach to data collection and formulation of responses is discussed in detail. Following that the conclusions of the benchmarking exercise are presented and both internal and external follow up actions are outlined.

2. Planning a benchmarking exercise

The *Benchmarking Exercise on eLearning* among universities in Europe originated as an idea from the University of Southern Denmark. Here the initial idea was to look beyond national borders in order to compare, collaborate and learn from other universities on the specific subject of eLearning. However, when planning for the benchmarking of eLearning among universities in Europe, some initial considerations had to be made. First and foremost questions about objective, outcome and benefits needed to be addressed in order to determine the framework, process and level of collaboration for the benchmarking exercise. Along with these questions, considerations about number of participants, size and timeframe together with issues on management of the benchmarking exercise and finding and selecting the right participants had to be addressed.

From the start, ESMU was chosen as an external partner and manager of the benchmarking exercise. ESMU has for several years been carrying out annual benchmarking exercises within European higher education institutions (of which the initiating university, University of Southern Denmark has been a participant) as well as developing significant work on benchmarking in higher education and producing a handbook as an attempt to provide a clear definition of what benchmarking is and is not. The ESMU benchmarking methodology is precisely based on a collaborative approach, and is about organisations learning to share and identify good practices in order to set targets for improvement as discussed above. The focus is on processes by which results are achieved. Processes often exceed organisational boundaries and involve several departments and levels within the organisation, and the benchmarking exercise should lead organisations to question the impact of such boundaries on the effectiveness of their processes. With ESMU involved as the organizer and manager of the benchmarking, the objective of the exercise was to enable each institution to reference its own policies and practice against the other institutions in the group using a methodology developed and agreed by the whole group.

In the absence of national or European codes of practice for benchmarking of eLearning it was necessary to bring in an organisation with expertise in the quality assurance of eLearning. Hence

EADTU[45], *European Association of Distance Teaching Universities* was chosen as a second managing partner for their subject expertise on eLearning together with their newly developed online assessment tool, E-xcellence, aimed at individual higher educational institutions and their use of ICT for distance teaching.

At an initial meeting in Brussels in May 2009 between the initiators from the University of Southern Denmark, ESMU and EADTU, the final benchmarking methodology and collaboration plan was agreed on, as well as two subject experts (Keith Williams[46] & Bob Rotheram[47]) who should act as reviewers and compilers of the benchmarking questionnaire and responses were named. The *Benchmarking Exercise on eLearning* should be a collaborative activity in which the participants use mutually agreed performance criteria in order to reference their own performance, relate their performance to the other participants with the help of two subject experts, and finally develop an individual action plan for addressing future improvement within their own organisation. The exercise as such consisted of these five stages:

- establishing benchmarking criteria at a workshop (May 2009, Brussels, Belgium)
- data collection and preparation of institutional response
- compilation of responses and preparation of report
- comparison of institutional responses and workshop discussion (November 2009, Odense, Denmark)
- development and implementation of improvement action plans

The time frame was set to ¾ of a year starting spring 2009 and finishing by the end of that year, leaving roughly 2 months for mutual collaboration on benchmarking criteria; 1 month for setting up the questionnaire; 2 months of individual data collections and institutional response to the questionnaire; 2 months for experts to review and compile an interim report; 1 month for discussing the interim report and developing individual action plans; and finally 1 month for the experts to sum it all up in the final report. The exercise was set to a minimum of 8 and a maximum of 15 participants, involving a cost of € 3.400 for each participating institution for the whole exercise (excluding travel and accommodation at the two workshops).

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[45] **http://www.eadtu.nl/**

[46] Keith Williams is a Senior Lecturer in the Communications and Systems Department of the Open University. In a long career at the Open University he has served as Dean of Technology Faculty and as Director of Academic Development in Open University Worldwide, the university's international division. He worked as Director of Distance Learning with The British Council during leave of absence from the OU. He has been a member of the E-xcellence project core team throughout its initial phase, E-xcellence Plus and the recently funded E-xcellence Next phase. He is currently engaged in projects concerned with professional skills development with Sector Skills Councils and employers.

[47] Bob Rotheram is Reader in Assessment, Learning and Teaching at Leeds Metropolitan University. He is a UK National Teaching Fellow with over 30 years experience of university teaching and faculty development in several countries. He is particularly interested in the uses of technology in higher education.

With the help of ESMU, the University of Southern Denmark placed a European call for participation – asking universities to join in the benchmarking of eLearning on the above conditions. By spring 2009, luckily 10 universities had asked to participate, of which 9 ended up carrying out the exercise. As the participant group showed a fruitful diversity in terms of geography, use and experience of eLearning, there was no need to engage in a selection process.

In order to establish a common ground for developing criteria and benchmarks for the exercise, it was agreed to utilise the E-xcellence criteria developed by the EADTU as the starting point. The criteria were structured on the assumption that higher education institutions operate within a strategic framework and that other policies, resourcing and management practice relate to the institution's strategic vision and objectives. Hence the criteria developed in the E-xcellence[48] project also cover pedagogic, technical, student and staff related aspects of eLearning and their interrelationships. Amongst the resources available via the E-xcellence website is a "Quick Scan" questionnaire that enables an institution to informally evaluate their eLearning performance against 33 criteria.

This Quick Scan questionnaire was used as the starting point for the formulation of the benchmarks used in this exercise. The formulation of benchmarks was a collaborative effort, see details below, however, each institution produced and submitted its response to the questionnaire in isolation from the others. The responses were then collected and combined into a compilation and an associated summary chart that presented an overview of what were judged by reviewers and ESMU staff to be contributions of significant interest. From this material the reviewers produced an interim report, which was circulated to the participants prior to the final workshop held in Odense, Denmark. Additionally participants were requested to draft an action plan for improving performance and practice regarding eLearning at their university. For this an action plan template was provided in order to help the participants identify what needed to be achieved and how.

At the final workshop each participating university was invited to make a short presentation of an aspect the reviewers had identified as being of particular interest. The idea was to bring more detail to best practices of different sorts from all participating universities. Finally the workshop addressed the initial action plans, which was discussed and supervised in groups. Universities showing best practice in one area of eLearning would support others addressing development in this particular area and vice versa.

By the end of the year, the whole benchmarking exercise was summed up in a final report delivered by the experts Keith Williams & Bob Rotheram (Williams & Rotheram, 2010). The report addressed all the results summarized within the 6 benchmark categories, and additionally went to point to possible conclusions and best practices within each of these categories. The report also included data on background and benchmarking methodology for the whole exercise, as well as a summery chart of participant responses to the questionnaire.

[48] http://www.eadtu.nl/e-xcellence

3. Evaluating benchmarks

As mentioned above, the first step of the benchmarking exercise has been the completion of the Quick Scan exercise by each university. The Quick Scan exercise has been proposed in the frame of the EADTU's E-xcellence Project. It is accessible online free of charge[49] and is supported by the E-xcellence Manual (Ubachs, 2009). It consists of 33 benchmarks. At the moment, three versions are available (English, French and Italian).

This Quick Scan tool was used as a mechanism for initial engagement with the benchmarking criteria, as each participating university was asked to access and finalise the scan before the first workshop in Brussels. The questionnaire was completed online, and each participant received online feedback immediately that made comparisons between the answers to the different questions possible. The feedback also included suggestions for relevant procedures that each participant should consider implementing to drive eLearning forward at the institution.

The Quick Scan questionnaire was discussed at our first workshop in Brussels on 26 and 27 May 2009. At the workshop, representatives of the participating universities met with members of ESMU and of the E-xcellence development group in order to discuss the use of the benchmarking criteria and indicators of the E-xellence tool as the basis for this particular benchmarking exercise. Some criteria and indicators were found irrelevant, some were added, some were just revised and yet some were substituted by new criteria more closely related to the blended learning context of the participating universities. The changes concerned student perspectives, library resources and personalisation among other things. But with these changes the group in collaboration decided that the 33 reformulated E-xcellence criteria could work as benchmarks for the exercise.

The agreed reformulated criteria and performance indicators were then transposed into a questionnaire by colleagues from the University of Southern Denmark who also managed the process of collecting and compiling responses.

In focus at the first workshop, which was led by Keith Williams (Open University, U.K.), was also and in particular the different approaches to distance learning by the participating universities, all of them defined as "traditional universities".

The mission of traditional universities includes research and teaching, the latter is often offered face-to-face because the direct contact between the researchers and their students play a very large role in university teaching. Therefore, the face-to-face lessons remain the core and eLearning is used to support and enhance the students' learning. However, the main goal of traditional universities is to provide high level teaching, based on the most advanced research; therefore teaching is sometimes considered a secondary goal. For this reason, these universities typically do not invest high budgets in teaching, nor provide full distance courses, because of the overall costs and the costs

[49] http://www.eadtu.nl/e-xcellenceqs/

of updating materials. The usual trend is to provide “blended learning” courses, where only a part of the course is online.

The group therefore had lengthy discussions on terms to be used and the definition of these terms: “eLearning” stands for full distance learning or the online components in a course; “blended learning” for a face-to-face with some eLearning components course. At the workshop in Brussels in May 2009, eLearning was defined as follows: “e*Learning covers a wide set of applications and pedagogical processes supported by ICT, such as web-based learning, computer-based learning, virtual classrooms and digital collaboration with an added value of increased accessibility, flexibility and interactivity*” (unpublished observations, *BEEL* workshop, May 2009).

The discussion on terminology has been very useful to reach an agreement among the participants on what should be modified in the proposed questionnaire. The main areas which were modified were the curriculum design and course delivery. The benchmarks in these areas very clearly pointed at a distance learning approach to eLearning and had to be reformulated to properly reflect the blended learning approach of the group.

The group agreed, with expert Keith Williams and ESMU secretary general Nadine Burquel, that our benchmarking exercise would be devoted mainly to a qualitative assessment and not a quantitative one; only the data about budget and expenditure would provide a quantitative picture of the universities.

The final benchmark questionnaire was first discussed in two small groups at the workshop in Brussels, where changes and additions were proposed. The “big work” was done after the meeting because we had the possibility to work together on a virtual platform offered by the University of outhern Denmark, where the final version of the questionnaire was eventually available.

The final questionnaire included the following 6 benchmark categories:

- Strategic management
- Curriculum design
- Course design
- Course delivery
- Staff support
- Student support.

Everything was now set for the individual data collection at the participating institutions.

4. Internal Data Collection and formulating responses

With the questionnaire as a framework, the purpose of the internal data collection was to describe the policies and practices adopted at each university to facilitate a comparison between the participating universities. The guidelines for collecting internal data stressed that one should consult widely with colleagues to ensure that one's institutional policies were fully represented. In addition each benchmark statement should be described with about 250 words maximum.

With the above in mind, all participating universities used different approaches to organising and collecting internal data.

In the following, we will briefly describe the different ways in which data collection was organised and approached.

Approaches to and the organisation of data collection

At the *University of Southern Denmark* (SDU), the internal data collection was organized and conducted by a task force consisting of two representatives from the Central E-learning Unit. Following an analysis of each benchmark statement and indicator, 18 key persons were identified and interviewed. These persons were categorized with respect to their knowledge regarding eLearning at SDU and the different benchmarks and indicators. From an organisational perspective these key persons were representatives from the following different levels and units at SDU: the E-learning Unit including our LMS system administrator, the E-learning Strategy Committee, the E-learning Coordination Committee and the Quality Organisation. These interviews were supplemented with relevant eLearning documents describing the ELearning and Quality Organisation at SDU. To secure a representative collection of data with respect to the benchmarks Curriculum Design and Course Design, persons from each faculty were interviewed (these are included in the 18 key persons).

The questionnaire and its indicators were used as a semi-structured interview guide. Together with a student assistant we conducted and transcribed the interviews simultaneously. This approach forced us to transform each benchmark and indicator to questions that could be asked to our different informants or key persons. Therefore, answering the questions posed in each benchmark became an easy task when using the corresponding indicators. A first draft of the questionnaire with responses was sent back to all informants for corrections and additional feedback. A few corrections were made and the questionnaire was then completed.

At the *University of Porto*, a task force was set up for the purpose of data collection, comprising six members: 1) the institutional coordinator for the benchmarking project, 2) the director of the IT Systems division (supporting the information system and the computer network, including the eLearning servers and infrastructure), 3) the director of the Communication division (providing support for the development of eLearning contents, among other roles not related to eLearning), 4) a member of the academic staff who is also a specialist in eLearning technologies, particularly in

Moodle, 5) one degree director (in this case, a member of the academic staff that is responsible for the integrated masters degree in mechanical engineering), and 6) one student (at the time, a 4th year student in the electrical and computer engineering integrated masters degree).

A plan of face-to-face meetings and email discussions were agreed upon, enabling data collection and peer-review of information, according to the specific expertise of each member. The plan worked well with the exception of the selected student, who was not able to attend the face-to-face meetings and did not contribute with information or review comments. This was not due to a lack of interest, but rather to a lack of opportunity due to his academic duties (mostly classes and exams). The combined areas of expertise of the remaining team members were, however, considered sufficient to validate the responses to the questionnaire.

The approach to collecting data did not involve interviews with end-users, not only for reasons of time, but also because the selected group of people were believed to possess all the knowledge needed to answer the benchmark questionnaire. At an initial meeting, the questionnaire was run through and a first round of information was gathered and used for building the first set of responses. This draft document was then circulated to get written feedback from the group members, which in turn was used to refine the responses. Occasionally there were doubts which led the coordinator to talk with additional people, namely people that were then in the Board of Directors. A second meeting took place to discuss the overall picture, and then the responses were sent. These responses led in turn to some comments from the experts, which we used to rediscuss and further refine some aspects.

At *Aarhus University* it was strategically decided to form a small task force towards the implementation of the benchmarking exercise, which should act as an active and proactive unit with respect to collecting data in terms of the necessary information and documentation. Since the focus was on management processes, a broad representation in the task force seemed unnecessary, but rather a small and efficient task force that could act quickly and flexibly. Thus, the task force consisted of four people including Head of Studies, an IT consultant, the head of The E-learning Unit and a Special Adviser also from The E-learning Unit, with the latter as project manager of the exercise and data collection.

Because of a merger between Aarhus University and several other Danish Universities, the collection of data became a challenge. Especially because each of the merging universities had their own eLearning units which used different approaches to eLearning. It was then decided that the point of departure for answering the benchmark questionnaire should be from the perspective of the Aarhus University E-learning unit. Other eLearning activities from the merging universities were used in the questionnaire if considered relevant.

At the *University of Bologna* a task force was set up consisting of the eLearning manager and a young expert in budgeting, data management and presentation, who was paid to support the data collection. Data were collected in August 2009, when most of the central university offices were closed. This limited the collection of data to be from the official reports of the university published on the university website. In addition detailed data about salaries were received from the "Accounting and Control Area" for the relevant periods and staff involved in the eLearning activities.

AT *Lund University*, the internal work on the benchmarking exercise was co-ordinated through the Centre for Educational Development, in collaboration with the Library Head Office and the Director of Strategic Development. The benchmarking process was based on recently submitted written documentation, evidence and material from the EADTU E-xcellence+ project in 2008[50] as well as from the site visit report and the formulated action plan for Lund University. The extensive body of documents was updated with the help of colleagues at the various infrastructural units and several initiatives, since the action plans mentioned in the E-xcellence+ documentation had now been formally implemented.

Experiences from the data collection and formulation of responses

Using the questionnaire as an interview guide had significant drawbacks. First and foremost, there were difficulties turning the benchmark statements and indicators into understandable questions which could be posed to the informants. It also played a role that the participants were all non-native English speakers. This forced the group to carefully discuss each benchmark and related indicators which indeed was a time consuming task. After the workshop in Brussels, it was assumed that agreement on the meanings of each benchmark and related indicators had been reached, but trying to explain and turn each benchmark into reasonable questions was for some an unexpected challenge. For future benchmarking exercises it is, therefore, recommendable to use more time on the development of common ground with respect to the identified benchmarks and indicators.

Cultural differences between the participating universities, the external partners and the experts also had an impact on the benchmarking exercise and made it a complex business to reach agreement and to translate benchmarks to local contexts. An open and explicit discussion becomes even more important in this light. Nothing should be assumed or taken for granted.

Looking back on the experiences from the process of collecting data and formulating responses, it was a challenge to work with the questionnaire. It should be shortened, and an initial glossary should be added to ensure that all institutions work with a common perception of terms and expressions. But from a positive point of view, all agreed that a much deeper and better understanding of eLearning at each university has been achieved.

5. The benchmarking report

The final version of our *Benchmarking Exercise on eLearning* report dates from January 18th 2010 and comprises the following sections:

- **Introduction** [4 pp.] – offering an overview of the background of this exercise; describing the benchmarking methodology, criteria, and performance indicators that were adopted;

[50] Based on the results of this project, Lund University was, as the first university in Europe, awarded the Excellence Associates label for the two benchmarked international Master programs.

and presenting overall observations that facilitate the interpretation of contents and the identification of possible follow-up actions.

- **The benchmarking exercise and results** [16 pp.] – presents a summary of the information gathered within the six main areas addressed by the EADTU E-xcellence questionnaire: Strategic management; Curriculum design; Course design; Course delivery; Staff support; Student support.
- **Conclusions** [6 pp.] – subdivided according to the same six main areas referred above, this section contains the core results of the benchmarking exercise.
- **Summary** / **What we have learned about the benchmarking process** / **Where do we go from here?** [3 pp.] – these three short sections close the analytical part of the report, offering an insight into the results of this exercise, and follow-up recommendations.
- A final **appendix** [46 pp.] presents a quick overview of the responses received from each institution to the 500+ topics covered by the E-xcellence questionnaire.

Before presenting a selected subset of key findings, it is important to recall that this benchmarking exercise had a *collaborative* nature, i.e. its main objective was *to share and identify good practices with a view to set targets for improvement* as mentioned above. The benchmarking report therefore does not rank the participating institutions. Another important underlying assumption worth of mention, in line with general collaborative benchmarking exercises, is that the final report does not suggest specific action plans – it is the responsibility of each institution to analyse the report and devise a framework and strategy to *convert the results and benchmarking efforts into improved processes and organisational change*. Accompanying *goals, targets, milestones and deadlines*, supported by appropriate resources, will then be required to improve the performance of eLearning within each institution.

The results in the *strategic management* area indicate that the importance and resources attached to eLearning differ substantially among the nine institutions. This raised the concern that senior management may yet be unaware of its impact on teaching and learning activities, or perhaps believes that a high-quality eLearning service can be provided cheaply. It is also interesting to note that universities said little about their awareness of emerging technologies, which may suggest the opportunity to set up a (collaborative?) effort for intelligence-gathering in this area.

The conclusions reached in relation to *curriculum design* highlighted the importance of reflecting on personalised curricula, which is often attractive to students, but less so to staff. ELearning may contribute to shortening this gap through greater study flexibility. On the other hand, eLearning must not contribute to weaken the acquisition of some important non-technical learning outcomes, e.g. communication and teamworking skills. The importance of eLearning to promote each university "brand" outside the institution was also acknowledged, particularly in what concerns the participation in a *wider academic community* (by openly sharing educational content) and in supporting *community development* efforts (for attracting students and lifelong learners).

Course design was an area where differences and similarities were found among the nine universities. The technical support offered to teachers wanting to develop eLearning content differed significantly, and may be strengthened by going beyond educational developers and

eLearning technologists, e.g. by showcasing good practices and promoting peer-support groups. The difficulty (complexity and time) of summative e-assessment was brought into evidence. However, there is clearly an opportunity to widen the use of lighter formative e-assessment resources, e.g. quizzes, which are much easier to implement, but are also able to provide immediate feedback to the students. The unsolved issue of plagiarism was particularly evident since this group comprised only non-English speaking universities, where existing tools, e.g. Turnitin, are far less effective.

Differences were the rule in what concerns *course delivery*, and included such topics as monitoring usage and changing needs of eLearning, maintenance and backup procedures, security arrangements, online documentation, how to mark / remove obsolete content, etc. Particularly worth mentioning are the differences found in the integration of the VLE and the registration / administration systems (the benefits of integration are subject to discussion), and the level of interactivity supported. The (collaborative) intelligence-gathering efforts that were previously mentioned can be useful in this context by helping to identify integration trends at mainstream level, as well as interactive applications that make their way into students' toolboxes, e.g. social networking, instant messaging, etc.

Peer-support and showcasing of good practices were mentioned earlier in the report, but reappeared as the responses concerning *staff support* were analysed. The main conclusions reached at this level indicate that time spent on pedagogical and eLearning activities deserves better recognition, e.g. by prestige, prize or curricular weight. ELearning also defines new ways of working and new training needs for students and staff – a more demanding and flexible workload leads to the need for just-in-time training linked to effective follow-up support. It is also interesting to note that most universities said little with respect to copyright / protection of intellectual property rights, an area of obvious concern for academic staff involved in eLearning.

Student support brought into evidence the importance of mapping the computer experience of the students via surveys to find out how much information and support should be provided (at least a statement defining their rights, roles and responsibilities). Our results also highlight the importance of offering peer support, e.g. as study advisors, help desk staff, etc. Last but not least, we concluded that there are major differences in what concerns the accessibility of eLearning systems, and that provision for students with disabilities is an area where there is ample opportunity for improvement.

6. After the benchmarking exercise

The expert report from *BEEL* noted that participation in benchmark exercises always involves reflections by the institutions on the lessons learnt and on new approaches and methods that the experiences can be expected to bring. It is expressed as follows:

- "*Once the results of the benchmarking exercises have been produced and analysed, the final step concerns the design of a **clear framework**, a **precise action plan** and to **convert the results** and benchmarking efforts into **improved processes** and **organisational change**.*
- *The owner of the benchmarking exercise (i.e. either a group or one person inside an institution) will have the responsibility to oversee the effectiveness of the implementation*

*with **goals, targets, milestones** and **deadlines** and appropriate resources for the change process to take place effectively. Prioritising projects for implementation and allocating appropriate resources for their effective implementation is essential.*

- ***Plans for changes** should be **realistic** and include clear steps over time. Obviously while the focus of the benchmarking exercise will determine the immediate and long term action plan, short and long term goals to improve performance should be identified, and detailed action plans agreed upon to adopt good practices found in other higher education institutions.*
- *Integrating benchmarking into strategic planning, **conducting benchmarking exercises as a regular practice** and introducing new topics for benchmarking will support on-going organisational evaluation and retaining a competitive edge.*
- *Such a change agenda depends crucially on **strong leadership** to set clear directions and ensure their implementation. Highly-performing higher education institutions use a variety of tools, including benchmarking, to better understand their operations and progress towards increased performance*" (Williams & Rotheram, 2010, s. 29-30).

As shown in the paragraphs above, a benchmarking project does not end with the exercise as such. It needs to be followed by reflections on lessons learnt, which can be incentives for further development at the institution. This may involve changes in structure, organisation and resource allocation, which place heavy demands on strong leadership at all levels.

Further, the importance of an integration of benchmarking processes as a natural part of strategic quality work is emphasised. The value of continuously following up earlier benchmarking exercises as well as taking part in new commitments is highlighted.

At the universities participating in the benchmarking exercise, several departments were involved in full. They were thus able to focus on and discuss common areas and processes, creating togetherness, trust, commitment and involvement. This will certainly contribute in turn to enrich the future employment situation and potential development areas.

As clearly expressed by representatives of the *BEEL* project, additional benefits regarding teamwork, dialogue and policy making, quality assurance and transparency within the organisation were obtained.

In the following some experiences from Lund University (LU) are chosen as examples of values and impacts of participating in *BEEL.* Regarding LU's participation it can be stated that values have been gained on several levels, within departments, on university management level, as well as on national and international levels.

In a former benchmarking exercise, namely EADTU E-xcellence+ (Ubachs, 2009; Ossiannilsson & Landgren, 2010a) two benchmarked Master programs were awarded, as the first in Europe, the *E-xcellence Associates label* as a concrete recognition of high quality in eLearning. As a result of this, increased national and international collaboration as well as raised student recruitment have been gained.

The awareness of the infrastructural support of eLearning which is one of the results of the benchmarking exercise, has been explicit and this has led to a closer collaboration between those infrastructural units, but also further collaboration with faculties and departments, for example within pedagogical areas and e-resources.

An additional value is the use of a solid collected documentation, knowledge and institutional awareness regarding eLearning. For example, the Swedish National Agency for Higher Education (NAHE) is conducting a national survey on distance education concerning definition, strategic plans, statistics, organisation, budget, support and development, with special focus on possibilities and limitations. Through the work on the benchmarking projects, LU now possesses a body of documentation regarding eLearning (distance education) which is valuable and can constitute a foundation for input to the NAHE survey. The same additional values are valid for international contexts. One example of this is the invitation of LU to participate in the *First dual-mode distance learning benchmarking club* (Bacsish, 2009) with special tasks, besides the benchmarking as such, to make a concordance of the different benchmarking models used by EADTU,[51] ESMU[52] and Pick&Mix[53] and to suggest possible new core criteria.

Above we discussed and gave examples of the activities that follow internally in an organisation in the wake of a benchmarking exercise. Below, we will reflect on the ways in which participants in a benchmarking exercise can make use of each other once the benchmarking has ended. There is a variety of opportunities for future networking and knowledge exchange between participants in a benchmarking exercise. Collaboration can take place on different levels according to the needs and wants of each university:

Strategic collaboration

As a participant in a benchmarking exercise, one has the chance to meet universities that face the same challenges as oneself. For example, the University of Southern Denmark has been a multi campus university during its 12-year existence. Last year, Kuopio University was merged with two other Finish universities into the University of Eastern Finland. Being a multi campus university provides challenges when it comes to staff and student support and to the organisation of competence development offers for both administrative and teaching staff in the field of net-based communication, collaboration and learning. At the same time, the multi campus situation is a natural driving force for the implementation of online technology that can help save time and money on transportation between campuses.

It makes sense to approach each other to learn from best practice and to undertake joint discussions on how best to handle the challenges. This can evolve into continued benchmarking on a smaller scale where two or more universities from the group collaborate and formulate new benchmarks.

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[51] **http://www.eadtu.nl/**

[52] **http://www.esmu.be/**

[53] **http://elearning.heacademy.ac.uk/wiki/index.php/Pick&Mix**

Such new benchmarks can help the institution improve in important areas and can play a major role in the continued quality assurance effort.

Collaboration on a practical level

On a more practical level, knowledge exchange between all benchmarking participants can lead to mutual inspiration and can help the individual university understand and handle topical issues within eLearning.

In the benchmarking exercise, it became apparent that each university possesses best practice within certain areas that are of importance for all universities. These areas include pedagogical, technical, strategic issues etc. In the benchmarking exercise itself, there was little time to study in depth, the best practice of the other universities. However, the exercise gave a good overview of the strengths of each individual university. Presentations and discussions on these strengths at online or face-to-face events would be very beneficial to all.

This benchmarking group is still in the process of establishing agreement on the nature of the future collaboration. A network has come into being, in which participants use each other as experts when knowledge within a certain topic is needed. Future activities might also include joint applications for EU funds and more joint papers like the present.

7. Conclusions

One of the values of a benchmarking exercise entails studying your own organisation as part of the data collection process. Such a study raises the level of awareness of internal strategies and practices and thus prepares the way for internal follow up. Additionally, the formulation of action plans forces participants to use the results of the exercise and take action to further develop the organisation in a meaningful direction securing quality enhancement within the given area, in this case in the field of eLearning and blended learning in higher education.

Based on their experiences, with the present paper and the presentation at the EADTU Conference 2010, all the participants in BEEL strongly recommend other institutions to participate in benchmarking exercises in relevant areas. There are many benefits for a university as such, in addition to further national and international opportunities for collaboration and networking.

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Dangayach, Govind Sharan: Flexible Teaching & Learning: Perspectives & Practice in Indian Context

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Abstract

The use of communication and information technologies in higher education has been a major aspect of change in the past 10 to 20 years. Developments in higher education require flexible approaches to teaching and learning. Flexible teaching and learning is an idealised state where there is a mixture of educational philosophy, pedagogical strategies, delivery modalities and administrative structures which allows for maximum choice for differences in student learning needs, styles and circumstances. Flexible learning approaches involve more than participating in learning activities outside of scheduled classes. In line with global approach, Indian higher education system has also experienced number of changes in its curriculum. This paper presents recent developments and changes in higher education system in Indian context. A framework is given with respect to flexible teaching and learning. The case study of a leading national technical institute is developed to support the findings.

Introduction

Higher education drives and is driven by globalization. It trains the highly skilled workers and contributes to the research base and capacity for innovation that determine competitiveness in the knowledge-based global economy. The Indian higher education system is one of the largest such systems in the World. It is estimated that during the X Five Year Plan period (2002-07), there will be a tremendous pressure of numbers on this system and a large number of additional students will be knocking at the doors of higher education institutions in the country. There are also new challenges of management and regulation being faced by these institutions, which require serious attention, both at the institutions in the public sector and also those in the private sector now growing at a fast pace. As a result, the old structures of management established in pre-independent India and working during most of the twentieth century are now required to undergo drastic changes (OECD, 2009).

Indian higher education system has undergone massive expansion in post-independent India with a national resolve to establish several Universities, Technical Institutes, Research Institutions and Professional / Non-professional Colleges all over the country to generate and disseminate knowledge coupled with the noble intention of providing easy access to higher education to the common Indian. The Public initiatives played a dominant and controlling role in this phase. Most of

the Universities were Public institutions with powers to regulate academic activities on their campuses as well as in their areas of jurisdiction through the affiliating system. Even the private institutions enjoyed large-scale financial support in the form of grants from the public exchequer. Private funds as well as individuals played key roles in the cause of higher education. With the public funding being no more in a position to take-up the challenging task of expansion and diversification of the higher education system in the country to meet the continuously growing demands at present, there is little option other than bringing in private initiatives in a massive way to meet the various challenges. The deregulating mechanism of controls started with the granting of "Autonomous Status" to identified Colleges in the 1970s.. Some of these Colleges have graduated further to receive the "Deemed to be University" status in later years. Now, the country has established Private Universities in different States (Kaul, 2006).

The new challenge before the country at the beginning of the twenty first century is to become a developed society by the year 2020, which requires that not only a vibrant economy driven by knowledge has to be ushered in soon, but also a new society where justice and human values prevail has to be created. Moreover, challenges in higher education are no longer only nation centric. They have already attained global dimensions, particularly after trade in services has been brought under the purview of the WTO regime. With the explosive growth of knowledge in the past century and with the development of handy tools of information and communication technologies as well as of other scientific innovations, competition has become a hallmark of growth all over the World. As a result, knowledge is not only going to be the driver of Indian economy, but also, it is going to permeate into all the strata of Indian society for a better quality of life and living conditions. Therefore, India has to rise to the occasion urgently and reorient its higher education system to be vibrant, competitive, meaningful and purposeful.

This paper is divided into four main sections. After the introduction in section 1, the overview of teaching-learning process is presented in section 2. In section 3, a framework is presented for flexible learning and teaching. In section 4, a case of a leading technical institute is developed, followed by concluding remarks.

Teaching – Learning Process

In the 1990's, educational reformers are seeking answers to two fundamental questions: (1) How well are students learning? and (2) How effectively are teachers teaching? Classroom Research and Classroom Assessment respond directly to concerns about better learning and more effective teaching. Through close observation of students in the process of learning, the collection of frequent feedback on students' learning, and the design of modest classroom experiments, teachers can learn much about how students learn and, more specifically, how students respond to particular teaching approaches. Classroom Assessment helps individual college teachers obtain useful feedback on what, how much, and how well their students are learning. Faculty can then use this information to refocus their teaching to help students make their learning more efficient and more effective.

As teaching and learning is closely bound to the cultural context in which it takes place and the handling it in the specific situation. To help teachers make decisions about their style of teaching, choice of materials, mode of interaction, etc., a model for educational planning is useful.

In order to systematically improve the flexibility in education, a nuanced understanding of flexibility is needed. An increasing number of books and articles are being published on the issue of flexible learning, and many possible definitions are offered. Collis & Moonen (2001) offered a comprehensive model of flexible learning in which they introduces 19 flexibility dimensions related to issues of:

→ time
→ content
→ entry requirements
→ instructional approach and resources
→ delivery and logistics

High quality achieved through three fundamental steps:
1. Pedagogic choices as the basis for any choice of technology
2. Focus on the possible consequences of maximum flexibility
3. Systematic evaluation and adjustment of course-activities

High flexibility achieved through:
1. Reduction of face-to-face encounters to a minimum
2. Development of course modules with low coupling and high cohesion
3. Support of interaction and learning with technology

As mentioned earlier, the issues of high quality and high flexibility easily come into conflict with each other. Thus, the reduction of face-to-face encounters may not always increase the quality of learning – depending on the group of students, the subject taught, etc. This also points to the fact that this approach calls for continuous discussion and critical evaluation of the specific pedagogical style, technological solution, way of working, etc. Efforts made towards pedagogical innovations is strenghtened through local competencies for development.

→ Pedagogy: Through use of technology and use of changed study materials new possibilities are offered to the students. Pedagogy is all about facilitating learning. Thus, in order to take advantage of the potential added value of the technology, the planner/teacher must carefully consider the consequences of his or her pedagogic values.

→ Technology: Technology is always used within a specific context, and especially in relation to educational practice this situated perspective is important. Therefore, design, test and evaluation of technology/tools for educational purposes must be carried out in authentic settings in order to ensure that the tools and use thereof are adjusted to the settings and needs of the specific culture and subject matter.

→ Study materials: The characteristics of online materials are different from traditional paper based materials in more ways than one, and as such they, at the same time, hold new pedagogic potential and pose a challenge to teachers.

The framework for Flexible Teaching and Learning

Educational opportunities and traditions that Indian Universities have built up, since independence have been able to produce graduates, capable only of pursuing limited careers, but, in the new globally competitive environment that is emerging in the country, the Indian student is now required to develop a multifaceted personality to cope up with the rapid changes in the world at large. This calls for the development of body, mind and spirit, through the educational processes in the institutions of higher education.

Health consciousness and physical fitness for a healthy body should be an essential part of the University culture. But, a healthy body alone cannot be attained and maintained without a healthy mind. Therefore *value education* becomes a desirable moral necessity for meeting the challenges of the contemporary World. Professional competence is of little value if professional ethics are forgotten. Similarly, brilliance is of no use if it is employed for anti social activities. In order to achieve all these ends effectively one has to see that the processes of education are properly regulated in terms of assessment and evaluation of learning. A close interaction between the teachers and the students in the evaluation of the progress of learning is desirable, so that teaching-learning process is not superficial.

Physical fitness and sports are two sides of the same coin and are mutually dependent on each other. As the famous dictum goes, mind is the key to man and eyes cannot see what mind cannot perceive. The relationship between mind and body has been acknowledged scientifically. It is generally believed that a healthy body has a healthy mind; but it could be the other way around also i.e. a healthy mind has a healthy body. However, this requires appropriate training. Present day education is largely academic. Realistically, this orientation needs to be changed for a balanced development through inculcating health conscious amongst students. This includes the development at physical, mental and social levels. With the increasing emphasis on academics in the World of employment and elsewhere and the rapid advances in science and technology all over the World, parental pressure has been driving academic training at the cost of health and physical fitness of the youth .It is in this context that there is now an urgency to lay a strong foundation and strengthen physical education and sports programmes in the higher education institutions. This calls for the integration of physical education, sports, yoga and recreation activities in the higher education system for the overall good of the younger generation.

The rapid developments in science and technology and the challenges of globalization are posing additional challenges to the education system in the country. The adverse effects of the media on the mental development and moral values of the younger generation are being felt increasingly in all spheres of life. In this context, there is now a growing demand to lay greater emphasis on education to inculcate, nurture and develop values, particularly among the youth of the country.

A great degree of diversity has been observed in terms of assessment and grading of the students in the University system at present. It is desirable that a certain optimum degree of standardization in

the examination system and in the assessment of students is put in place before grades are awarded to them. Major recommendations of flexibility are:

1. At present Physical Education is the only course taught at Schools and Colleges. It is important new subjects like, Health Management, Fitness Management and Sports Marketing are included in the curriculum, preferably as core/specialization subjects at professional preparation courses.
2. Physical education programmes should also include yoga and meditation in order to create a positive attitude among the students so as to achieve success in life and make physical education more meaningful and relevant in terms of education for life. All the Universities may be encouraged to establish facilities for education/training in yoga and meditation.
3. It is desirable that human values should permeate and form part of the teaching in all disciplines and subjects.
4. The compulsory paper on "Environmental Science", recently introduced by UGC, may be suitably elaborated to bring forth environmental concerns in the backdrop of human values.
5. It is also recommended that the evaluation criteria of institutions should be so spelt out as to give due weight to the inculcation of human values, and that the 'Healthy Practices' identified during the Assessment exercises be widely disseminated by NAAC for the benefit of other institutions. Both the UGC and the NAAC can play useful roles in this initiative.
6. The Semester System should be preferred to the annual system in teaching and evaluation at the Indian Universities.
7. Continuous Internal Assessment should be given the attention it merits in the students' academic programmes at the Universities.
8. The Grading System with a linear 10-point scale and its equivalence in terms of percentage of marks should be followed uniformly across Universities and disciplines. However, the evaluation methodology may vary across disciplines / Institutions.
9. Pre-and Post-processes of examinations should be made transparent. i.e. the pattern of papers, evaluation methodology, disciplinary rules etc. should be properly documented and communicated to students well in advance.
10. Appropriate and effective feedback mechanism (e.g. returning corrected answer books to students, responding to students' queries on the evaluation procedure, etc.) should be established at all institutions.
11. Examination should be designed in such a way that at least some portion of it evaluations the students' insight into the subject.
12. In the continuous evaluation based on objective-type questions, measuring the higher mental ability of students should be adopted and ICT may be effectively used to set and evaluate such papers.
13. Serious efforts should be made in developing question banks by following rigorous scientific procedures across disciplines. If need be, regional level workshops may be organized for the purpose. Computerized database may be created in each discipline.
14. Proper orientation on assessment methods should be given to all the teachers, particularly to the newly appointed teachers. The Academic Staff Colleges set up by the UGC at different Universities may be assigned this task.

15. A proper structure for Examination Reforms Units for the Universities should be evolved, supported by UGC to keep the nationwide evaluation processes at Universities under continuous scrutiny.
16. All the examination processes should be computerized and recent advances in ICT should be exploited to make the process automated and efficient.

The Case

Established in 1963 as a joint venture of the Government of India and the Government of Rajasthan, the Malaviya Regional Engineering College, Jaipur started functioning with 30 students each in Electrical Engg. and Mechanical Engg. The college shifted to the present campus in Jaipur in 1965. Spread over 325 acres of lush greenery, the campus of MNIT enthralls and inspires. Indeed, all the states and union territories of the country are represented in the undergraduate intake of the Institute (50% from Rajasthan & the other 50% from all other states & union territories of India including Rajasthan), thus making it a perfect example of the celebrated axiom, 'unity in diversity'.

The effort to maintain the high standard and committed approach of the College to the cause of technical excellence was recognized by the Ministry for Human Resource Development and University Grants Commission, New Delhi which granted it the status of a National Institute of Technology and Deemed University on June 26, 2002. It is one of the 20 NIT's established in different states of the country. Governed by the NIT Council, the Institute has four statutory bodies, namely, the Board of Governors, the Finance Committee, the Building and Works Committee and the Senate. The Institute is fully funded by MHRD, the Government of India, New Delhi. The non-plan and plan budget is of the order of Rs. 15 crores and Rs. 25 crores per annum.

The Institute is based in Jaipur which is a lively and vibrant city. Situated in Northern India at a distance of around 260 km south of Delhi, Jaipur would have been a part of the Thar Desert, but for the Aravalli Hills that provide it with much needed security from one side. The Institute is located near Malaviya Nagar on Jawahar Lal Nehru Marg. The main Railway Station and Bus Stand are approximately 10 km from the Institute, while the Airport is located at Sanganer at about a distance of 5 km.

The bedrock of any academic institution is the quality of its faculty and in this arena, MNIT is at the forefront. Our 156-odd full-time experienced faculty has a passion for teaching and an avowed commitment to R&D. The global perspective of the faculty makes the Institute a premiere institute of learning in India. Majority of the faculty holds doctoral degrees. Quality teaching is what we aim at so as to stimulate intellectual curiosity, creativity and innovativeness. The Institute is actively engaged in research, consultancy and developmental activities and collaborates with leading industrial houses and IT companies under various projects.

The institute is a part of the recent World Bank supported Technical Education Quality Improvement Programme (TEQIP) implemented by the National Project Implementation Unit (NPIU). The institute has been sanctioned a total grant of Rs. 20.00 Crores, under the project to create infrastructural facilities to impart technical education of international standards. The Central Library, Central Computer Centre and Design Centre of the institute are the backbone of the institution and are accessible to the students and staff of the institute.

Vision

To create a center for imparting technical education of international standards and conducting research at the cutting edge of technology to meet the current and future challenges of technological development.

Mission

To create technical manpower for meeting the current and future demands of the industry; to reorganize education and research in close interaction with industry with emphasis on the development of leadership qualities in the young men and women entering the portals of the institute with sensitivity to social development and eye for opportunities for growth in the international perspective.

Quality Policy

The MNIT shall strive to impart knowledge in such a manner so as to achieve total satisfaction of students, parents, employers, and the society.

Academic Departments

Following is the list of academic departments involved in Undergraduate and/or Postgraduate teaching and research in the institute.

(i) Architecture
(ii) Chemical Engineering
(iii) Chemistry
(iv) Civil Engineering
(v) Computer Engineering
(vi) Electrical Engineering
(vii) Electronics & Communication Engineering
(viii) Humanities & Social Sciences
(ix) Management Studies
(x) Mathematics
(xi) Mechanical Engineering
(xii) Metallurgical & Materials Engineering
(xiii) Physics
(xiv) Structural Engineering

Programmes of study

The main aim of undergraduate and graduate education at MNIT, Jaipur is to enable students to face the wide-ranging changes taking place in the fields of technology, environment and management with confidence. This includes undertaking design development, construction, production, managerial and entrepreneurial activities and higher studies in their chosen or allied interdisciplinary fields of study.

The Institute offers undergraduate postgraduate and research programmes through its Departments. The Institute admits on an average about 810 students for undergraduate programmes (B.Tech./B.Arch.) and more than 400 students for the postgraduate & research (M.Sc./M.B.A./M. Plan./M. Tech./Ph.D.).

The Institute lays great emphasis on assisting students in the development of character and self-confidence with management trails. To achieve these goals, the curriculum lays more stress on learning and less on teaching. Efforts are made to encourage self-learning, creative thinking, critical evaluation, spirit of inquiry and in imbibing the culture of lifelong learning.

Structure of Undergraduate and Postgraduate Programmes

The four year B. Tech., 5 year B.Arch. and two year M.Sc./MBA/M. Plan./M. Tech. programme comprises of courses divided in four distinct areas viz. Institute core, Programme core, Programme elective, open elective, co-curricular and extra-curricular activities.

Institute Core (IC)

The institute core consists of courses considered essential for a chosen programme. There are several institute wide courses such as course on sciences, mathematics, humanities, engineering sciences etc.

Program Core (PC)

The Program Core consists of courses considered essential for a chosen engineering/science/ management discipline, including laboratory courses, practical training and a major project/thesis. There are few institute wide courses such as course on Mathematics & Technical Communication which are common to all PG programmes.

Program Electives (PE)

The Program Electives are related to the chosen engineering discipline but are designed to offer deeper insight in specialized courses.

Open Electives (OE)

The Open Electives are the courses offered by different academic Department under different PG programmes to the students of other disciplines. The students are free to select

a number of courses from a basket of courses offered, depending upon their interests and inclination towards other disciplines.

Co-curricular activities

Educational tour, Group Discussion, development of technical communication skills and practical training form an essential part of the curricular structure.

Extra-curricular activities

The students are also encouraged to participate in a variety of extra-curricular and sport activities with a view to develop their overall personality and groom a student to be an engineer and/or manager. These activities are also given weightage in calculating the overall academic grade of a student. Table 1 gives detailed structure og UG programme.

Table 1. -Structure of undergraduate programmes

Curricular Components		B. Tech.	B. Arch. Credits	Coordinating Department(s)
(a) Institute Core	Humanities, Social Studies and Management; Basic Sciences; Engineering Science and Arts	45	45	Respective departments
(b) Programme Core (including 10 credits for Project work/ Thesis spread over pre-final and final semesters, 4 credits for Practical Training, 2 credits for Group Discussion/seminar)		66-78	110-130	The Department offering the programme
(c) Programme Electives		32-40	15-20	The Department offering the programme
(d) Open Electives		20-32	12	The Department offering the Elective*
(e) Others				
Discipline		04	06	Dean of Student's Affairs
NSS/Sports/Creative arts		02	02	Dean of Student's Affairs
Total		180-188	199-210	

Source: Courses of Study, MNIT Jaipur

Each course of the Postgraduate programme has a number of credits assigned to it depending upon the academic load and weekly contact hours of lectures, tutorials/studio, practicals and self study. Normally one credit is assigned to each lecture of one hour or one tutorial/studio hours or two practical hours. Credits assigned to various constituents of the PG curricular structure are listed in the Table 1, Source: **Courses of Study, MNIT Jaipur**

Table 2 and 4.

Table 1 Curriculum Structure of M.Tech. Programmes

S. No.	*Course components*	*Course classification*	*Credits*
Programme Core			
	Programme core courses		15-21
	Minor Project OR Seminar		03
	Dissertation		18
Programme Electives		PE	12-18
Open Electives		OE	6-12
Technical communication			02
Total			*60-66* *+2 (Tech. Comm.)*

Source: Courses of Study, MNIT Jaipur

Table 2 Structure of M. B.A. Programmes

S. No.	*Course components*	*Course classification*	*Credits*
Programme Core			
	Programme core courses	PC	51
	Seminar		4
	Project		14
	Summer Training		4
Programme Electives		PE	16
Open Electives		OE	12
Total			*101*

Source: Courses of Study, MNIT Jaipur

Table 3 Structure of M. Sc. Programmes

S. No.	*Course components*	*Course classification*	*Credits*
Programme Core			
	Programme core courses	PC	72-84
	Laboratory Courses		
	Seminar		
	Project		
	Technical Communication		
Programme Electives		PE	12-20
Open Electives		OE	-
Total			*92+2 (Tech. Comm.)*

Source: Courses of Study, MNIT Jaipur

Some Aspects of Flexibility

Semester System

The academic programmes in the institute shall be based on Semester System: Autumn and Spring Semesters in an academic year with winter and summer vacations. A number of courses shall be offered in each Semester. In summer vacation, some courses may be offered as per provision in the regulations.

Each course shall have a certain number of credits assigned to it depending upon the academic load of the course assessed on the basis of weekly contact hours of lecture, tutorial, studios and laboratory classes, field study and/or self study. The credits for the Project/Dissertation/Arch. Thesis shall be assigned depending upon the quantum of work expected.

The courses offered in a Semester shall be continually assessed and evaluated to judge the performance of a student.

NSS/Sports

Every student shall register for the specified number of credits in the first year, for participation in the NSS/Sports for the overall development of his/her personality. The students shall be admitted to NSS/Sports on the basis of their preference and by virtue of their aptitude and abilities as decided by a committee constituted by Dean of Students' Affairs (DOSA). A student shall be continually evaluated for his/her participation and awarded grade following the procedures specified. There shall be at least 80 hours of engagement in an academic year and the attendance regulations for the courses shall apply. This requirement shall be completed in the first year. If, however, a student is not able to complete this requirement in the first year, he/she shall complete it by the end of second year failing which he/she will not be allowed to register in the fifth semester.

Creative arts/ Sports

Every student shall be admitted to creative arts and various games and sports up to the second year on the basis of his preference and by virtue of his aptitude and abilities as decided by a committee constituted by DOSA. In case of creative arts/sports, minimum engagement shall be at least 5 hours per week and it will be evaluated continuously as specified for the courses. A special course on "Hindi" may be offered to foreign non-Hindi speaking students under creative arts.

Independent study

A curriculum may contain a 3-credit course on independent study as a Departmental Elective, which may be offered in the fifth Semester onwards. It may involve any of the following: (i) in-

depth study and critical review of a specified topic, (ii) specialized laboratory work/experimental project/ feasibility studies, (iii) work on a research project and (iv) software development of a specialized nature. A student having CGPA of 7.5 or more may register for this course only once with the prior approval of the Chairman, DUGC, during his enrolment for a Bachelor's degree.

Minor- project

A curriculum may contain a 3-credit course on minor project as a departmental elective, which may be offered in fifth semester onwards to carry out a design and fabrication type of project. Not more than three students, each having CGPA of 7.0 or more, may carry out the project together and register for this course only once with the prior approval of the Chairman, DUGC during their enrolment for a Bachelor's degree.

Industrial/Field/Practical Training

A curriculum shall contain a 4-credit component of Departmental Core Course on Industrial/Field training for 8 weeks generally carried out during the summer vacation following the Sixth Semester. The evaluation of this course will be carried out in the Seventh Semester. In B.Arch., practical/field training shall be for a period of 20 weeks i.e. for the entire duration of VIII Semester and shall carry 5 credits. The evaluation of this will however be carried out in the IX Semester.

Group Discussion and viva-voce

A curriculum shall contain a 2-credit component of Departmental Core Course on Group discussion and Viva –Voce on contemporary issues of technological importance, generally offered in the third year of the UG programme.

Major Project/Arch Thesis

A curriculum shall contain a 10- credits component of Departmental Core Course on major project, generally offered in the fourth year of the UG programme. The B. Arch. Course curriculum shall contain a 10-credits component of Departmental core course on Arch. Thesis offered in the X Semester.

Self study course

A self study course may be offered under special circumstances from the list of regular courses of study, to a student in his/her final Semester when he/she is short by a maximum of 5 earned credits to become eligible for the degree. This course shall be offered only if approved by the Dean, AA on the recommendation of the Chairman, DUGC.

Discipline

Every student shall have to undertake a total of 4 & 6 credits of discipline, respectively, for the requirements of the B. Tech and the B.Arch. degree. The student shall be continuously evaluated for discipline during his/her entire period of enrolment.

Preparatory Courses

The preparatory courses shall be offered to SC/ST students admitted to these courses through AIEEE prior to their joining UG Programme. A Coordinator appointed by the Dean, AA, shall coordinate these courses. The Coordinator shall also be responsible for fixing the time schedule and finalization of the results to be submitted to the Dean, AA, immediately on completion of the second semester, as per schedule prescribed by the Dean, AA.

Course Evaluation

A student shall be evaluated for his/her academic performance in a course through tutorials, practicals, home work assignments, term papers, field work, seminars, quizzes, Mid-Term Examinations (MTE), and the End-Term Examination (ETE), as applicable according to the guide lines formulated by the UG Board for this purpose. The answer books of Mid-Term as well as End-term examination are to be shown to the students and discrepancies, if any, as may be brought out by any student may be rectified by the examiner and thereafter the result will be finalized. The distribution of weightage for each component shall be decided and announced by the Course Coordinator at the beginning of the course. End-term examination will normally be of 2 hours duration. However, faculty teaching the course may opt for more than 2 hours duration, with prior information to Head of the Department and Dean Academic Affairs.

Summer Term

The students of first through final year B.Tech./B. Arch. courses who have registered but failed to clear courses after obtaining 'E' OR 'F' in the previous semesters, provided that the student having grade 'F' has fulfilled the attendance requirements during normal semester. They may be allowed to register themselves for such courses in the Summer-Term during summer vacation on payment of necessary fees on a specified date. The Summer-Term is a compressed Semester where all the regulations for the normal Semester shall apply but the registration shall be limited to three courses having total credits not exceeding 14.

The concerned Department shall offer and shall organize the required summer courses, as intimated by the Academic Section before the beginning of the Summer-Term. A course will be offered in the Summer-Term provided that there are a minimum of five students registering for it.

Course Audit

A student may register to audit a maximum of 8 credits from the Institute or Departmental Elective Courses out of the minimum earned credits specified for a given academic curriculum,

as advised by the Programme Advisor. A student registered for an audit course may be awarded by the concerned teacher an “AU” grade if his/ her attendance is more than 75%.

Concluding Remarks

India has seen a consistently high rate of economic growth in the recent years. It has now become a major player in the global knowledge economy. Skill-based activities have made significant contribution to this growth. Such activities depend on the large pool of qualified manpower that is fed by its large higher education system. It is now widely accepted that higher education has been critical to India’s emergence in the global knowledge economy.

Apart from increased support from alternative sources, higher education received increased financial allocations from the government. Thus, in spite of massive expansion in enrolment, average funding per student did not go down. Higher education has received a lot of attention in India over the past few years. There are four reasons for this recent focus. First, country’s weak higher education system is being blamed for skill shortages in several sectors of economy. Second, reservation quotas in higher education institutions, particularly the more reputed ones that provide access to high status and best-paid jobs became a highly divisive issue, central to the policy of inclusive growth and distributive justice, and hence politically very important. Third, in the backdrop of the first two developments, it began to be argued that the country would not be able to sustain its growth momentum and maintain competitiveness unless problems with higher education are fixed. Last, demand for higher education continues to outpace the supply due to growing population of young people, gains in school education, the growing middle class and their rising aspirations.

The case of a leading national technical institute is developed to support the proposed framework. The institute is fully funded by ministry of human resource development, Govt. of India.

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Davies, Judith: The Practice Learning Opportunity: Learning for Whom?

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Abstract

In common with governments around the world, the UK Government is committed to creating a 'learning society', recognising that lifelong learning must inform provision and participation across the full continuum of learning contexts. This important shift in understanding suggests that learning must move beyond traditional institutionalised 'provision' of education to real participation of individuals in the learning process.

Within this context, this paper will consider the meaning of lifelong learning and its role in the professional team, with particular regard to learning associated with hosting students. While much of the research into learning in teams focuses on the individual learner or 'apprentice', this paper addresses the learning of those who work with the 'apprentice'.

It is a requirement of professional social work training in the UK that students complete a number of 'practice learning opportunities' (PLOs), based with a social work team. This paper outlines a small-scale research project carried out with a social work team in Wales (UK), which regularly hosts PLOs. The learning of the host team members and the implications of this for the employer in terms of recognising such learning will be explored. While the student emerges (hopefully) with a professional qualification, what recognition is there for individuals who are committed to promoting the learning of others and in so doing are simultaneously pursuing their own learning? Do organisations ostensibly committed to lifelong learning embrace this important aspect and what are the opportunities to build such learning into organisational strategy for lifelong learning?

Introduction

This paper investigates the practice learning opportunity, an assessed element of the Social Work Degree in Wales. The PLO is 'the process by which social work students are enabled to learn and apply the values, skills and knowledge needed for social work in practice" and is the student's opportunity to learn about and demonstrate integration of theory and practice (Care Council for Wales 2004 p.39).

However, the practice learning opportunity as outlined above focuses on the student as learner. Anecdotally, at least, a great deal of learning takes place not just for the student in this context, but also for those other individuals involved in the PLO and who work with the student on a day to day

basis. If this is the case, then the focus upon the student alone as learner in this context seems inadequate and it is possible that there is more learning going on than is currently acknowledged.

The aims of this paper are to explore this broader learning; to establish whether the PLO context might be considered a 'community of practice', (Lave and Wenger 2002 p. 112, Wenger 2002, p. 160), where learning occurs through participation; and to consider the implications of the findings for the planning and delivery of the practice learning opportunity.

My main research question concerns who learns during the PLO, what they learn, and how this happens. To set this in context, I also needed to have an understanding of current policy and practice in social work education and practice. The principle research questions were identified as follows:

1. How is lifelong learning policy reflected in social work practice based learning currently?
2. How is this learning organised/recognised?
3. What is the dominant learning perspective?
4. Does the dominant learning perspective adequately accommodate all the learning that takes place during a PLO?
5. Does any other learning occur during the practice learning opportunity in addition to the explicit, formal learning of the student ?
6. If so, what is this learning, how does it occur and who does it apply to?

I began by exploring how Lifelong Learning policy is reflected in Social Work education and practice, drawing on Schuller and Field's (2002) exploration of this issue and Alheit's (2002) notion of 'learning environments'.

Secondly, the main focus of the study concerns the learning of all those involved in the PLO. Lave and Wenger's (2002) and Wenger's (2002) notion of 'legitimate peripheral participation' and the 'community of practice' provides a starting point here, supported by the importance of learning from work colleagues (Eraut et al 2002a), while Fuller et al (2005) make a valuable contribution in considering the reciprocal nature of learning in communities of practice.

Finally, Keep and Rainbird (2002) provide insights into the role and value of the notion of the 'Learning Organisation' in providing learning opportunities for its employees, which will help in understanding the organisational perspective on learning.

Subjects included practitioners accessed through a local authority training manager, who also took part in the study. Student participants were currently studying for the degree in social work. Including the training manager and the student group in my sample, also made some triangulation possible Permission was sought from the institution prior to interviewing.

Literature Review

UK Lifelong Learning (LL) policy has generally adopted a human capital approach to LL, promoting investment in the development of the skills and education of the workforce, viewing employees as a valuable asset (Schuller and Field, 2002 p.78), rather than acknowledging the value of informal learning in the workplace. This approach is reflected in policies demanding the development of a 'competent workforce' (WAG 2001), as much in evidence in the Social Work profession as in other sectors.

However, an approach that also recognises the importance of 'networks, norms and trust', (Schuller and Field 2002 p. 78), as envisaged by international organisations such as the Commission of the European Communities (1995) and the OECD (1996), may open up opportunities for participation in learning, in 'the learning society' (Alheit 2002, p. 32). This was helpful in introducing the notion of managed 'learning environments', in which a range of learning opportunities might be provided, recognising the value of informal as well as formal learning.

With regard to my research questions, then, my focus was to investigate how learning needs and opportunities were indentified and accessed, and who managed this process. In thinking about the learning perspective, what kind of learning this is, and who learns in the PLO setting, recent developments in understanding learning have been important. The shift from pedagogical approaches, with their emphasis on transmission of learning, through andragogical approaches, (adult education), arriving more recently at situated understandings of learning sits well with social work training, in which the PLO is such an important element .

Lave and Wenger (2002) were particularly influential in shaping my thinking initially, as the 'community of practice' felt like such a good fit for the social work PLO. They describe learning as socially and historically situated and in which shared participation is the key to learning. Knowledge and learning are located in practice itself and the learner's relationship with the social and cultural context, known as the 'community of practice' (Lave and Wenger, 2002, p.113) is key in developing identity.

Within the community, apprentices learn to become participants by being allowed to participate in practice. Initially this practice is at a peripheral level, although still crucial to the completion of the task, and therefore of value to the community. As expertise increases, the apprentices eventually become full participants of the 'community of practice'. This is what is known as 'legitimate peripheral participation' (Lave and Wenger 2002, p. 113).

The social work student might be equated with Lave and Wenger's apprentice. Indeed, Shardlow and Doel (1996, p.72) suggest the importance of opportunities to complete complex tasks in small steps, 'not necessarily in the sequential order in which they are usually performed', echoing the notion of 'legitimate peripheral participation'. The student has to become familiar with the shared understanding and practice norms of the team that is hosting them, as well as those of the social work profession as a whole, in order to become a qualified practitioner, or a full participant in the community.

Some empirical support for the community of practice is provided by Eraut et al (2002b), who identified the importance of mentoring and coaching; rotations, visits and shadowing; consultation, observation, as important elements of learning from others in the workplace. These are all common tools in the social work PLO, regarded as important elements in the learning of the student (Shardlow and Doel 1996).

Lave and Wenger's model of legitimate participation feels like a good fit – not a perfect one, however. Difficulties with the model include the assumption that the apprentice arrives as a 'tabula rasa', with nothing to contribute either to their own learning, or to the community which they are entering. This is neither my own experience, nor, anecdotally, that of other practitioners, and evidence suggests that, on the contrary, both the new arrival and the old timer may learn new knowledge and skills form one another (Fuller et al 2005, Dunsworth 2007).

Related to this is the notion of identity, which Lave and Wenger (2002) claim is developed through participation. Social Work Practice learning literature, however, has long recognised the importance of prior experience and learning in the PLO, acknowledging that the student arrives with their own identity, values, knowledge and experience (Shardlow and Doel 1996), and with much to offer.

Furthermore, creation of new knowledge is also problematic for the COP model. Wenger (2002) argues that new knowledge is created at the boundaries of COP's. While the newcomer (student) is participating peripherally, old timers (practitioners), are, by definition, full participants of the community and therefore not involved in peripheral participation. COP theory does not account for this kind of learning (Fuller et al 2005). Other research does evidence this learning, however (Fuller et al 2004; Hodkinson and Hodkinson, 2004, Dunworth 2007), identifying the learning of old timers from newcomers.

Management of the PLO and the exercise of power within it are not effectively addressed by Lave and Wenger. Establishing their existing identity in the new setting, or challenging the status quo, means challenging the power dynamic within the COP. Lack of management of the PLO will have implications for equality of opportunity within it and may mean the difference between inclusion and exclusion. Other authors, however, do recognise this power dynamic as something that needs to be managed in the COP (Fuller et al, 2005, Eraut 2002b).

Fuller et al (2005) identify that the management of the learning opportunity is key. They found that clarity in terms of aims, role and status of the apprentice, together with wide ranging learning opportunities across community boundaries, and where membership of multiple communities of practice was encouraged, led to well rounded, well informed apprentices, and full participation in the community.

While the literature relating to Learning Organisations does suggest that 'social and systemic' dimensions of learning are key to an organisation's success in developing the skills of its employees (Keep and Rainbird 2002), pressures to achieve targets, be cost-effective and time-efficient, make this feature of learning increasingly difficult to achieve. By challenging the way in which organisations conceptualise learning, however, it might it be possible to promote the value of informal learning in the PLO.

Wenger (2002) identifies some dimensions of progress within his prescriptive model of the COP. 'Enterprise', or 'learning energy', identifies how much effort the community puts into maintaining the centrality of learning; 'mutuality' (social enterprise) identifies the sense of community and trust developed; and 'repertoire' reflects the degree of self awareness of the community – reflection on this enables the community to develop its practice. Wenger also suggests that a COP at work will be primarily based on 'engagement' (one of three modes of being'), so for the purposes of this study I used the lens of 'engagement' in relation to these three 'elements' to explore the social work PLO. This seems an appropriate lens to use, as 'engagement', building relationships, and being 'self aware' are all important aspects of the social work role and process, and despite the need perhaps to extend Lave and Wenger's model, in essence it does feel a good fit.

Initially, the literature provided an understanding of situated learning and of learning in the workplace, both of importance in the project. However, Lave and Wenger (2002) provided an understanding of the learning of the 'newcomer', but failed to address wider issues and in addition was limited in a number of ways. I needed to look further to find evidence supporting the learning of 'old timers', and of the impact of students on the COP.

Wenger's framework for understanding the COP is undoubtedly of value, so I used this as the basis for evaluation of the data gathered, but I also sought to explore some of its weaknesses as identified in the literature.

First and foremost, I was seeking to answer my main research question, regarding who learns during the PLO, what they learn, and how this happens. I also looked at how the host team in the PLO work together to resolve conflict, how the power dynamic was managed, and whether reflection is used as a tool in this regard. I needed to think carefully about how and whether some of these issues can be accommodated within Wenger's framework as it stands, and if not, how it might be enhanced

Methodology

The aims of the study were: to explore the learning that takes place among all participants in the PLO, and to establish whether this context might be considered a 'community of practice', (Lave and Wenger 2002 p.112, Wenger 2002, p.160).

The area for investigation lent itself to a qualitative approach in that this would give me the opportunity to explore the 'meanings, perspectives and understandings' (Open University 2001 p.51) that members of the host team attach to learning in the PLO context. This enabled me explore beneath the various layers of understanding which would remain inaccessible and unexplored had a quantitative approach been used.

I am familiar with the concept of the PLO and with notions of student learning and work with these in my professional life. Participants in the study were also familiar with the setting itself and most had some understanding of the PLO process, particularly in terms of its value in student learning.

However, this study proposed to take a look at the PLO from a new angle, which served to 'make the familiar strange' (ibid, p. 49), assisting in the process of taking a curious stance not just for myself, but also for participants

Other researchers (Hodkinson and Hodkinson (2004), Fuller et all (2005)), whose work has informed this study, also used qualitative approaches in their investigations into communities of practice. This too influenced my choice of approach.

Thought was given as to method and initially the use of a questionnaire was considered. While it would be possible to construct questionnaire suitable for a qualitative approach, there is no opportunity for follow up or clarification. Moreover, while this method may provide more data in terms of numbers of respondents, it is likely to be less rich than data obtained through interview (Bell 1985, p.157).

Observation may be an effective method of collecting rich data, however, this requires considerable skill and is certainly not 'an easy option' (Nisbett 1977, cited in Bell 2005 p.184). While it may have provided some interesting data, therefore, this time consuming method was not practical for a small scale study. In a longer term project, however, observation might provide a fourth perspective on learning in the PLO (that of the researcher).

I therefore selected semi-structured interviews as a method, enabling me to penetrate beneath initial responses and explore meanings in more depth, employing active listening skills, focusing on the issues at hand, exploring, and checking out my understanding of responses was correct (Open University 2001, p.58).

I was able to carry out individual interviews with five members of the host team as planned, and with the training manager, but the planned group interview with students did not prove possible, so a pragmatic alternative was to carry out individual telephone interviews with two students and similarly a telephone interview with the training manager.

This meant that the benefits of using the individual face to face interview remained (immediacy, observation of body language) although the benefits of the group context (interaction within the group, generating discussion and ideas (Open University 2001 p.174) were no longer available as regards the student group and thought needed to be given as to how best to elicit the necessary information over the telephone. An awareness of vocal/auditory cues became necessary in order to judge emotional responses, and appropriate turn taking in the discussion.

I wrote to each participant, explaining what the research was about and assuring confidentiality and anonymity (unless of course any concerns for the wellbeing of a child or adult arose during the interview). Participants were then asked to consider and sign a consent form prior to the interview (Hart and Bond 1995, cited in Bell 2005 p.45). This would avoid or at least pre-empt any anxiety at the beginning of the interview.

The interviews constituted a series of questions that provided a guide, but also allowed for free, more in-depth discussion as appropriate. As the interviews were informal and semi-structured events, participants were encouraged to talk freely and so in reality much of the information required across the various themes was provided without the question being asked, and indeed,

unsolicited information was also gained in this way. Prompts or examples in addition to the questions themselves enabled further exploration if participants were not clear as to what was being asked of them (Bell 2005 p.169).

Interviews were recorded (with the permission of the participants), although transcription was not possible or practical in view of the time available (Bell 2005 p.165). Recordings were disposed of once the project was finished.

While the area under consideration in this study is largely informed by my own professional interests and values (Open University 2001, p.59), the research questions themselves arose from consideration of the literature related to lifelong learning. Initially, COP felt like a 'good fit' for the PLO. However, other issues emerged that were not accommodated by the COP model (see above). Consequently, questions needed to address wider issues such as conflict, 'old timer' learning and reciprocal learning, identified by other researchers (Fuller et al, 2005; Hodkinson and Hodkinson, 2004)

The potential for bias is always present, perhaps particularly so in the interview situation, in which both interviewee and interviewer contribute and are (Open University 2001 p.58). As the 'presence of self' (ibid) cannot be avoided, every effort was made to minimise this potential (Bell 2005 p.166). The research questions and analysis framework being closely based on the literature also helped in this regard.

The use of a qualitative approach means that while statistical generalisation from the findings of this study may not be possible, 'fuzzy' generalisation (Bell 2005 p. 12) may be. That is, it may be possible 'that what is found in the singularity will be found in similar situations elsewhere'. In addition, its 'relatability' (Bassey 1981 cited in Bell 1985) 'is more important than its generalisability' and thus it may contribute to a body of knowledge accessible by individuals working in a similar situation who may relate the findings to their own circumstances.

Data presentation and anlaysis

In designing the study, I was mindful from an early stage that I would need to develop a framework which would facilitate analysis of the data collected. The questions were designed around the notions and ideas that arose in the literature, which were pertinent to the PLO setting. Consequently, the framework I used reflected this and enabled me to categorise the data accordingly identifying which would be most informative with regard to the research questions.

Although the data was analysed using these categories the scale and nature of this report allows for a limited analysis, and will focus on Wenger's three elements, management and power, and other learning in the PLO.

Policy

Lifelong learning policy in the UK was reflected in practice in the formal data collection process regarding training needs and how these are met, ultimately feeding into the Welsh Assembly Government's Workforce Development Plan. This ensures that appropriately qualified individuals are matched with particular posts and that training (sometimes mandatory) is provided accordingly. However, it was also mentioned by one participant that "Lifelong learning is not relevant to social work".

Joint enterprise

A culture of learning was evident in the team, learning needs were identified both individually and jointly, and opportunities to share knowledge and expertise were identified by several team members:

"…*team discussion to identify individual and team needs"* (team member)

"…feedback in team meetings – any learning is shared eg domestic abuse" (team member)

"We also have visitors to the team" (team member)

"Worksheets for free access" (team member)

With regard to the PLO itself, a joint effort was promoted, with the team manager or practice assessor focusing the team's attention on the forthcoming arrival of the student, and seeking learning opportunities from team members. The manager normally 'asks team members to bear students in mind' in terms of identifying appropriate learning opportunities.

Open discussion was identified as a factor that contributed to learning:

"open debate within the office helps with learning" (team member)

Mutuality

Norms and relationships in the team were developed in a variety of ways:

"…team meetings, supervision, away days. Lots of time talking about learning needs" (student)

*"Personal relationships help offload, even small conversations, honesty" (*team member*)*

"…respecting who you are rather than just being a resource' (student)

Social events, such as lunch, taking a smoking break together, or simply 'gathering around the kettle' (student) were also seen as crucial in creating such relationships:

*"…relationships/ trust takes time, building understanding etc" (*team member*).*

Such building of relationships enabled individuals to '*share any concerns'* (team member) and open up sufficiently to '*have discussion and share nitty gritty, gaining a variety of perspectives*.' (team

member). Such support also *'allows the student to voice their opinions'* (student), and 'students say they're '*not afraid to ask questions*' (team member)

Joint repertoire

Reflection was seen as an important aspect of practice by most participants:

"having students does promote practitioners thinking about 'practice'" (student*)*

The student may initially need some help as regards language and understandings built up over time within the team, for example:

*"values - 'gallows humour' - stresses need to explain to student, helps to re-examine values" (*team member*)*

However:

*"'it is important that the student 'gets the feel' for the work/team' (*team member*).*

Indeed, when asked how the team know when the student has become a full member, responses included the following:

*" Sue, can you do...'without need to explain…" (*Student*)*

*"…aware of how it all works…" (*team member*)*

*"Comfortable - fitting into dynamics, feeling accepted; learn people's personalities…" (*team member)

And hosting a student can also bring challenges:

"*students can challenge/question what happens in a team*" (team member), enabling the team to move forward

Management, power

Almost all participants expressed the need for strong management of learning opportunities, both the PLO and more widely, for a number of reasons, including induction, workload management, and managing conflict/power issues:

"Power relations not managed can lead to ongoing issues" (team member*)*

In addition, '*anxieties may arise on arrival of a student' (*student*)*, creating conflict. Without strong management, such conflict could become problematic

Other learning

Appropriate learning opportunities for students often included shadowing, observation and visits to other teams/establishments. Taking responsibility for a part of a bigger piece of work was also identified as an important learning opportunity:

*"…can't always give cases but will have pieces of work (within a case) and use theories to apply" (*team member*)*

*"the student takes part in small elements of larger pieces of practice eg assessment and actions record" (*team member*)*

All respondents felt that the host team learn from students, who bring knowledge and expertise with them:

*"skills of team - bringing back basics of practice teaching… values - definitely challenged… theories - students bring information eg presentations" (*team member*)*

*"through co –working…two way learning; students can bring a new perspective" (*team member*)*

Several also suggested a rejuvenating aspect of hosting a student:

"…fresh pair of eyes" (team member*)*

"students keep a fresh perspective - ideals that social workers may have lost" (team member)

*"hosting a student brings hands-on knowledge of theory and research and can introduce new ways of working" (*team manger*)*

In addition, the experience of hosting itself can introduce new learning:

"…develop my own management skills and discipline" (team member*)*

Evaluation of data collection methods

The semi-structured interview certainly provided rich data, but needed to be managed carefully, maintaining the focus in order to ensure that the necessary information was gleaned. An interesting feature was the agenda of the interviewee, which had the potential to 'hijack' the interview, making careful management of the interview particularly important.

One of the difficulties however, with the interview is that it can provide too much, or perhaps complex, information, making analysis a challenging task. Deciphering a) whether data is relevant and b) how to categorise it is time consuming and may be open to interpretation. Ensuring my research questions and data analysis were closely based on the literature, helped.

The method itself, therefore, I would argue, was appropriate to producing data relevant to the research questions. The limitations lay in time available and my own skill in devising the interview schedule and managing the interview itself.

Although a triangulation was carried out, the nature of the data gathered may in fact be said to be too similar in nature, all having been gathered by semi-structured interview. Use of a complementary method such as a questionnaire would have provided data that was different in nature form that gathered here, making it more robust and possibly therefore more valid. Moreover,

the experience gained from using a variety of methods would have offered the opportunity for comparison and critical appraisal of each method.

As I have suggested above, use of other methods such as a questionnaire would lend a robustness to the data, enhancing its reliability and validity.

Consideration of gender issues was not a feature of the study, but as all interviewees were female (team members, managers and students), it must be recognised that this may have influenced the findings, and is something that would need to be addressed in a subsequent study.

While the data collection method used was successful to some extent, its limitations would require some refinement in a subsequent study. A group interview, for example, would take advantage of the dynamism such interaction can bring, ideas being discussed and new ideas being generated as a result of the interaction. Both individual and group interviews with both the host team and the student group, would also be beneficial, yielding more rounded and in-depth data. In a larger scale study, a wider range of groups or teams might be used, although this method would lend itself to serial small scale studies in my view, facilitating comparison between findings and groups.

Generally speaking, policy implementation in the team setting unsurprisingly, perhaps, reflects the human capital approach to lifelong learning, with an emphasis on developing a 'competent workforce' (WAG 2001). However, more informal learning opportunities were also available to both team members and students, highlighting the importance and relevance of building social capital (Schuller and Field 2002) although these remain without formal recognition. The organisational perspective here is that such learning can be 'difficult to capture' and this, together with the view that lifelong learning 'is not relevant to social work' suggests that this position is not likely to change in the near future.

Exploring the PLO setting through the lens of the community of practice, and in particular using 'engagement' as the most relevant of Wenger's 'modes of belonging' (Wenger 2002 p. 163), provided support for the COP model in that joint enterprise, or 'learning energy', mutuality, or 'social capital', and repertoire, or 'self awareness' were all evidenced in the PLO setting.

Moreover, part of the student's learning clearly involved LPP, taking responsibility for important pieces of work which constituted part of a bigger whole, in a similar way to Lave and Wenger's apprentices (Lave and Wenger 2002).

The evidence also suggests, then, in common with several other research noted above, that the COP model is flawed in a number of significant ways, and that there is more going on in the PLO (COP), than is suggested by Lave and Wenger (2002) or Wenger (20002).

The complexity of everyday social work practice brings with it real dilemmas, with competing perspectives (Edwards, Hallett and Sawbridge, 2008). Interviewees clearly felt that difficulties within the team should be managed. Indeed, there was strong support for the management of all learning opportunities, giving clarity as to role and responsibility, lending support to Fuller et al (2004) in suggesting that this significantly helps learning.

Interesting in terms of the title of the study, was who else learned during the PLO, beside the student. Hodkinson and Hodkinson (2004) identified that school teachers learned from their students. Similarly, all interviewees stated that host teams learn from social work students. Social work students bring with them skills and expertise, knowledge, familiarity with research and new approaches to practice. Their questions encourage host team members to reflect on their own practice and to update their skills. This learning of 'old timers' is not accommodated in the COP model. Team members may also learn new skills through the experience of hosting. Moreover, perhaps as a result of all this, the practice of individuals and the team as a whole is refreshed and re-invigorated – an important aspect not found in the literature review.

Conclusions

It would be unwise to draw concrete conclusions on the basis of the data presented in this small scale, qualitative study. However, some interesting insights in relation to the research questions do emerge, which may have implications for the way in which PLO learning is conceptualized. The study also raises further questions which may warrant investigation in their own right.

The study reflects current Lifelong Learning policy in Wales and the UK, largely committed to a human capital approach. Practitioners are encouraged to identify learning needs and to meet these by attendance at training events offered via the organisation's training department, meeting the requirements of the workforce development strategy. The training officer's response in terms of Lifelong learning being 'not relevant' reflects a narrow organisational understanding of Lifelong Learning, in which this is understood as 'upskilling' unqualified staff, rather than to the development of all, qualified or not. Informal learning opportunities are neither pro-actively promoted nor rewarded by the organization, although the importance of such opportunities was recognized by all interviewees

The notion of the COP (Lave and Wenger, 2002, Wenger ,2002) was supported by the data, although, in support of Hodkinson and Hodkinson, (2004) and Fuller et al (2005), the study suggests that this is a narrow understanding of what actually happens during the PLO.

For example, both students and host team members learned during the PLO. The value of what students brought with them in terms of knowledge, skills and values was recognized, and the potential of this to update, and challenge practice was referred to by several interviewees. One interviewee also identified new skills that were acquired through the experience of hosting a student, in addition to the honing of existing ones. This resonates with Fuller et al (ibid), who identify the learning of 'old-timers' as well as 'newcomers'. This interviewee seemed to be learning by participation in the PLO, which most definitely was not peripheral, and neither was she a newcomer.

One feature of hosting students also emerged, which I felt had not been addressed in the literature. Some interviewees suggested that hosting students in the PLO brought with it a quality of 'rejuvenating' practice (team member), suggesting they are not tainted with the cynicism of experienced practitioners. Reminding practitioners of their core values, returning ideals and a fresh

perspective to practice may lead to new ideas and innovative practice, and this I believe is an area that deserves further investigation.

The statement that "power relationships not managed can lead to ongoing issues" (team member) reflected a unanimous belief in the importance of management, again identifying a weakness in the COP model and supporting other research. Management was important in organizing the PLO (and learning opportunities generally), workload management, and in managing conflict and power issues. It was not clear, however, whether this was a reference to the importance of 'management tasks' needing to be carried out, or whether interviewees felt this role needed to be invested in one person. Further work in this regard might include reference to Eraut et al's (2002) work identifying the impact of the manager on workplace learning.

I set out to explore whether the PLO can be understood as a COP. My conclusion is that the COP can only offer a partial understanding of the PLO. However, rather than seek out alternative theory, it seems to me that the COP model needs to be enhanced to accommodate the reciprocity of learning; learning of old timers; and innovation and creation of new knowledge.

The implications of this for the organization are that they may be missing out on new (and existing) opportunities to develop their staff. By focusing on human capital, a wealth of informal learning remains unrecognized and unharnessed. Alheit's (2002) notion of managing learning opportunities across all sectors, while demanding an approach that recognizes learning other than solely that provided through traditional education/training, would ensure more equitable access to new learning opportunities as well as recognition of learning that is, or has already, taken place. Recognition and reward of such learning might perhaps be achieved through the development of 'learning teams', which would be recognized as providing a good quality PLO; or in view of the 'added value' attached to hosting a PLO, such participation in itself might be considered a required learning opportunity for staff.

The limitations of this study, however, mean that the exploration of how this might be achieved must be put aside for future investigation.

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Falcao, Rita & Soeiro, Alfredo: VIRQUAL - Network for integrating Virtual Mobility and European Qualification Framework in HE and CE Institutions

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Abstract

Europe has been investing in developing and implementing policies and tools to promote trans-European cooperation and mobility in many fields, including in Education. The Bologna Process is creating a European Higher Education Area where mobility, transparency and competitiveness are key concepts. The recent formal adoption of the European Qualifications Framework (EQF) was an additional and important step to achieve mobility in higher and continuing education

Joining e-learning and mobility together, it is obtained a new concept Virtual Mobility, defined by elearningeuropa.info as "The use of information and communication technologies (ICT) to obtain the same benefits as one would have with physical mobility but without the need to travel".

Virqual is a project in the form of a network that proposes to help educational and training institutions to achieve Virtual Mobility and to guarantee EQF implementation through e-learning, aiming at finding specific obstacles in institutions and proposing concrete and innovative solutions. Virqual will promote cooperation and joint work among partner organizations and will link with related initiatives. It will address other educational networks to help the dissemination of the results.

This paper aims at disseminating and promoting the activities of the current Virqual, to encourage other institutions to participate in this network, joining the SIGs and contributing to the development of the European common knowledge in this area. This participation may be done as passive members willing to receive information or as active contributors in the research, debate and in the definition of the framework to integrate virtual mobility and EQF.

General information and objectives

VIRQUAL, Network for integrating Virtual Mobility and European Qualification Framework in HE and CE Institutions is a project funded with support from the European Commission[54] with the reference

[54] This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

143748-PT-KA3NW. It is coordinated by Universidade do Porto, Portugal. You can find additional information about the project/network in the website: **http://virqual.up.pt**.

The current partners are **Universidade do Porto** (coordinator), Portugal, **EUCEN**, Belgium, **Technische Universität Wien**, Austria, **Eesti Infotehnoloogia Sihtasutus**, Estonia, **Gábor Dénes Főiskola**, Hungary, **Orta Doğu Teknik Üniversitesi – Sürekli Eğitim Merkezi**, Turkey, **Universidade Aberta**, Portugal, **TECMINHO**, Portugal.

General Objectives

The objectives of Virqual are:

a) To define, exemplify and promote discussion about using e-learning as a scenario to foster national and international collaboration of Higher Education and Continuing Education organizations to achieve virtual mobility implementation.

b) To critically assess and exchange results, ideas and innovation about European, national and local policies and initiatives in the area of Virtual Mobility, aiming at identifying obstacles and facilitators for collaboration.

c) To cooperate in the elaboration and implementation of concrete Virtual Mobility scenarios, by establishing partnerships among the network institutions, and providing solutions and specific tools for different processes and stakeholders involved in the process.

d) To elaborate, implement, make available and disseminate tools to analyse, support, manage at Institutional level, contributing to improve the Virtual Mobility in Europe while trying to implement EQF requirements.

It is expected that through the results of the Virqual network, other European Higher Education and Continuing Education institutions will find guidance, case studies and tools to integrate Virtual Mobility in their practices, contributing to the construction of a realistic European Learning Space.

Contribution to EU policies

The project aims at creating a linkage between Virtual Mobility and the competences relevant for EQF levels 6 and 8. The possible contribution to EU policies can be described as:

a) The value added to Virtual Mobility through proper assessment can change the status, in societal and professional terms, of e-learning. The proper assessment will be based on the use of adequate types of student acquired competences. Then the quality assurance of the learning through VM may bring more learners, teachers and researchers in populations that have not used e-learning. Results:

quality assurance of learning, wider access to learning, inclusion of minorities in the learning process and more efficient use of teaching resources.

b) A possible establishment of links to make more permeable the flux of courses and of students between VET and HE can be a successful consequence of the model proposed. The criteria and concepts of the model to be designed and tested can be easily adapted to other levels of EQF. That may bring a possible cooperation between ECTS and ECVET. Results: an abridging system incorporating ECTS and ECVET that can make LLL easier for all types of learners, the consolidation of a LLL individualized pathways to encompass different levels of EQF.

c) The model to be designed and tested can bring a closer approximation between the HE and CE institutions to the professional qualifications defined in EQF. In fact the HE and CE institutions have not adopted the EQF as their benchmarking and that makes the EQF difficult to accept in academic and training environments. Results: a wider acceptance of EQF by teaching organizations and institutions, learning outcomes of courses and degrees defined closer (or as a function) to the EQF competences.

Project Approach

Possible participants of this network are invited to join one of the discussion groups that will address research questions of the SIGs. These are in fact the work-packages where the contribution of other institutions will be more influential and more useful to all, partners and newcomers alike. Of course the other work-packages are accessible for contribution but with expected reduced impact on the results.

In fact the definition of the terms of how this linkage, between virtual mobility and the system of the EQF, will be established, will be tested and will be accepted is the main advancement expected from this project. Therefore the contribution of a large group of interested partners and of other institutions may lead to an easier acceptance of any proposal by the learning community of e-learning. Another possible benefit of being involved as non formal partners can be the access to the information created in this project with an eventual creation of a network to progress in this theme.

The motivation for the use of the project tools was in part related to the theme of the project: Virtual Mobility. Testing how Internet Based tools can increase our capabilities of managing people, relations, communication and processes, at a distance seemed to complement our projects objectives. Education management includes several processes that are very similar to managing a network.

Being VIRQUAL a network in the area of ICT and Education, it was assumed that stakeholders involved were interested in Web Based Technologies, including web 2.0 tools and maybe even active users. Web 2.0 promotes communication and information sharing, as well as collaboration and cooperation through the web. These are all processes included in a network facilitated by

technologies that emerged in web 2.0: social-networking sites, video-sharing sites, wikis, blogs, mashup and folksonomies.

Project Outcomes & Results

SIG 1: Virtual Mobility, ECTS and E-learning

The first phase originated four research questions:

a) Has the implementation of the EHEA with the European-wide adoption of the ECTS credit system and competence-based curricula effectively helped to foster student mobility so far?

b) What are the most important differences of Virtual Mobility in regard to Physical Mobility?

c) What are the most important barriers to virtual mobility (specific requirements, languages, percentage of face-to-face mandatory sessions in the courses,…)?

d) Are European Higher Education Institutions applying homogenous criteria when calculating the student workload in online and blended learning courses?

SIG2: Fundamental Research

The project team gathered four different case studies; an evaluation repository of cross-institutional Virtual Campus initiatives across Europe, an operational model of Virtual Mobility in Higher Education and two online respectively blended learning courses were analyzed. To gain a better overview a table was created to display the essential factors of each case study by which It is now possible to think about how to approach the topic in a more beneficial way and where to continue the research. The SWOT analysis performed in this SIG allowed following up information about key factors, weaknesses and opportunities of the case studies in an efficient way.

SIG3: E-learning and evaluation of Learning Outcomes of EQF

Learning outcomes can be seen as the hard currency of educational mobility and recognition, as soon as they are explicitly defined and professionally described. Learning outcomes in combination with adequate assessment procedures can be assumed as one of the main promoters for mobility with respect to both, students and institutions. But the shift to learning outcomes in the EU currently means a multi-speed development within different countries and institutions. To support the majority of institutions which are in or before the first phase of the change process a twofold strategy is proposed:

a) provision of guidelines and support for writing learning outcomes

b) web-based repository of best practice examples for learning outcomes

SIG4: E-learning Contributions to EQF

During the first year of work, it was done research on policies and practices in what concern e-learning and virtual campus in Europe, EQF and NQF current state of implementation and Virtual Mobility guidelines. The implementation of the European Qualification Framework is a great opportunity to discuss the role of ICT in learning. HE and CE have an important role to play, based on learning innovation, learning at the workplace and university learning (but we need to define it ourselves).

In order to improve the research, the following lines of work are proposed:

a) How can e-learning courses contribute to the acquisition of qualifications in different levels of the EQF?

b) Can it be acquired all types of qualifications through e-learning?

c) Which are the qualifications acquired by e-learning and the characteristics of these qualifications?

d) What are the reasons why some qualifications can not be acquired by e-learning?

e) What are the best scenarios and strategies for e-learning that can be put in place at the level of EQF, Bologna and Lifelong learning?

f) Are the learning outcomes to be related to learning content (curricula) or to activities to be performed by learners in the workplace or both?

g) How can the new e-learning strategies using web2.0 and social networks be used within the EQF and NQF plans for implementation?

h) How can HE and CE institutions certify Informal online learning (via the access to open educational resources or any other online open tools)?

Partnerships and networking

The project has worked to create partnerships with other projects, organizations and individuals. It is essential that the sharing of information and the debate about the possible solutions involves a large and rich number of project associated partners. It is possible to register as an associate partner of the project either through the web or contacting directly the project members.

For that reason efficient communication is a crucial process for networking. Virqual is using different communication tools, adjusted to the situation:

a) A mailing list (**virqual@reit.up.pt**) was created in the beginning of the project and was used to contact partners mainly for the administrative processes. During the course of the project and due to changes in contact persons at institutions a Google Group (**virqual@googlegroups.com**) was created because it was easier to manage. The e-mail address was maintained for external contacts.

b) Moodle Forum was the preferred media for communication and discussions about the themes of the project. However, during the course of the project the mailing list was used more frequently. One reason for this was that, from month 6 onwards, the research and development work was done in smaller groups, and larger discussions were more sporadic.

For dissemination and network, other tools were used. The website was produced using Drupal, a Content Management System that allows separating content production from website building. Drupal also facilitates the production of Contents by multiple partners that can be responsible for different areas. Other tools, like ELGG, are being studied for their potential to support networks. The website has at this date a total of 415 visits and a sitemeter is being used to understand the type and duration of the contacts. Finally groups and pages were created in Facebook, Linkedin and Slideshare to add a social networking dimension. Some participants of the project already have profiles in these sites and use it to network with professional contacts. So this seemed a very natural step to increase Virqual's networking capabilities. Also, it is expected it will be very useful for exploiting results after the third year of VIRQUAL.

Plans for the Future

The plan for the rest of 2010 and for 2011 is to establish a network with two types of nodes: active and passive. The selection of associated partners (nodes) has been and will be done based on mutual interest. The passive nodes are persons and organizations that already declared that just want to be informed of the project development and progress, the outputs and the deliverables. The active nodes are composed by the group of persons and of organizations interested in the sharing of experiences that are of common interest and in participating in the debate of the results and of the actions. For instance, there are three organizations interested in testing the model to be produced in 2010 in their activities during the 2011.

There will be three special interest groups starting at the middle of the project as a consequence of the research done in the first half. The first will be looking to establish practical guidelines with some common understanding on possible organizational, pedagogical and technical approaches to the implementation of Virtual Mobility (VM) within the European Qualification Framework. In fact, although mobility is one of the action lines of the Bologna Process where there is still a lot of work to be done. VM is hardly ever referred in the documentation but the definition of mobility of students proposed does not exclude it. There are open opportunities for the growth of VM since it may help to overcome some of the identified obstacles to traditional mobility.

The second group will handle the evaluation of Learning Outcomes versus the different types of assessment. The Learning Outcomes are defined as "statements of what a learner is expected to

know, understand and/or be able to demonstrate after a completion of a process of learning". Learning Outcomes are a description of the abilities of learners after having gone through a planned (formal) or spontaneous learning process (informal learning). Central for the purposes of virtual mobility are the correlations between learning outcomes and qualification frameworks, credit systems and mobility & recognition. The question how learning outcomes of studying outside the home institution can be recognised is crucial for the promotion of virtual (and physical) mobility. The main problem in this context is the low information value of assessment (in terms of trustable documentation of student's competences) if examinations are based on poorly or even completely undefined learning objectives.

In contrast to this unsatisfactory situation the adoption of Learning Outcomes would provide sufficient information. From this point of view clear, adequately detailed, and – as far as possible – standardised descriptions of learning outcomes in combination with compatible assessment procedures can be assumed as one of the main promoters of virtual mobility with respect to both, students and institutions. Students would be enabled to make a pinpoint choice of educational offers which meet their needs perfectly and reliably. Additionally the administrative costs of recognition could be reduced to a minimum. Institutions on the other hand could rely on the certified competences achieved abroad and handle them in the same way as internally achieved ones – again with minimal administrative effort.

The third group will deal what is the relationship between e-learning and EQF. The aim is to understand the ways e-learning can contribute to the implementation of EQF – levels 6 to 8. During the first half of the project, it was researched the policies and the practices in what is concerning e-learning and virtual campus in Europe, EQF and National Qualification Frameworks (NQF) current state of implementation and Virtual Mobility guidelines. EQF and NQF refer to descriptors that can guaranty the qualification and certification levels in Europe allowing students and professional's mobility within European education and labor markets. The e-learning contributions for the integration of EQF, bologna and lifelong learning are a huge challenge.

After these groups produced their research and surveys the goal is to produce a model to envisage ways where e-learning can be used as a tool to solve the questions of assuring that the competences acquired by e-learning can be recognized in the EQF list of competences for levels 6 to 8. This model can also be extended to so it can be explored ways to establish better links between VET and EHEA. The model will be tested with organizations to evaluate the possible application to e-learning in courses and training modules.

Feliz Murias, Tiberio & Feliz Ricoy, Sálvora: Teaching Tutoring Intelligent Agents to customise lifelong learning pathways

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Abstract

T2 is the acronym of the European Project *Teaching Tutoring Intelligent Agents to customise lifelong learning pathways*, supported by the Lifelong Program, Leonardo Da Vinci. This project is applying the intelligent agent technology to the training of worker in the microfinance sector. This sector is supported by a large number of NGOs and need resources to improve, update, and motivate their agents. The training was based on a platform, Forum, Chat, Assignments, Learning path, and intelligent assessment. The learning paths include explanations based on presentations and voice. The intelligent agent proposes questions and gives feedback to the trainees after their answers. The project has a complex system of evaluation and quality. To assure the best development of the project, we propose a collaborative work, the use of the platform use and a pair feedback for a good monitoring strategy. Another step is the regular use of collecting instruments. For this work we use the questionnaires for the evaluation. Moreover we propose the regular moments of discussion and exchange, as online discussion groups and meetings and periodical general balances, doing explicitly an evaluation of the expected results and the state of development. Università Telematica "Guglielmo Marconi" has led this project for two years in collaboration with MFC (France), PF (Poland), and UNED (Spain).

1. The project

The project Teaching Tutoring - Intelligent Agents to customize lifelong learning pathways in microfinance sector (2008) is usually referred to as T^2 (t square) due to the double dimension in the t-words as Teaching and Tutoring. It is a European project funded by the Lifelong Learning Programme, Leonardo da Vinci Programme, 2008 call, in the Transfer of Innovation section. This project has a length of two years.

The project is led by the Guglielmo Marconi University (Italy). At the end of project, open-university UTGM and the two microfinance networks have to set up a common and integrated didactic offer in France, Italy and Poland based on a combined course for the sustainable microfinance. The consortium estimates in 50 Microfinance institutions per year the final beneficiaries. The course is

also designed to be easily interpolated with others e-learning platforms and delivered in other European countries.

1.1. Goals

T2 aims to improve the quality, attractiveness and accessibility of training in the field of microfinance. The main goals of the project are to:

- Provide training organisations with a model to individualize training on specific microfinance institutions needs.
- Set up a common and integrated European training offer on sustainability of microlending and microfinance programmes.

1.2. Precedents

T2 adapts and transfers the pedagogical and didactic model developed in the PARMENIDE Project (Feliz, **), a previous Leonardo da Vinci funded project, into the course “Foundation of sustainable microfinance” planned in the framework of the previous PEMTE Project, supported by e-Content Programme. The model is based on combining e-learning methods and intelligent agent technologies. The result is a web-based intelligent tutoring system able to generate individualised assessment pathways for each student. In T^2, the same model is set up to support both students in self-learning and trainers in customize the lessons, following specific student needs and gaps.

1.3. Participants

The project was carried out by a Consortium of 4 complementary partners, all of them involved in previous PARMENIDE and PEMTE projects, located in four European states: 2 Universities specialised in e-learning and 2 European microfinance networks. The partners are:

- Università Telematica “Guglielmo Marconi” (Italy)
- Microfinance Centre (France)
- Planet Finance (Poland)
- Universidad Nacional de Educación a Distancia (Spain)

1.4. Organization

The project is organized in six work packages:

A. Work Package n. 1: MANAGEMENT

The tasks of this work package are:

a. Setting up a Management Board

b. Technical, financial and administrative coordination

c. Signature of Consortium Agreement

d. Kick-off meeting

e. Reporting activities

f. Virtual meeting

g. Mid-term meeting

h. Programme Agency meeting

i. Final meeting

B. Work Package n. 2: QUALITY AND EVALUATION PLAN

The tasks of this work package are:

a. Drawing up of quality & evaluation plan and tools;

b. Feed-back to Management board on the processes and on results' quality

c. Monitoring of the project activities in the respect of the general planning;

d. Evaluation of the results' relevance and effectiveness

e. Final Evaluation

C. Work Package n. 3: COURSE UPGRADING

The tasks of this work package are:

a. Setting up of research group and virtual meeting attendance

b. Target groups needs analyse and domain expert

c. Course contents update (with national case studies and legislation features)

d. Learning objects adaptation to SCORM standard and platform set up

e. Translations in French, Italian and Polish

f. Project portal set up

D. Work Package n. 4: DIDACTIC AND TECHNOLOGICAL MODELS ADAPTATION AND INTEGRATION

The tasks of this work package are:

a. Staff training workshop

b. IA contents production

c. IA pedagogical pathway definition

d. Tutor behaviour design

e. Users interface set up

f. Users guidance drawing up

E. Work Package n. 5: TESTING

The tasks of this work package are:

a. Teachers training seminar

b. Internal testing

c. Course Testing

d. Test evaluation and adjustments reporting

F. Work Package n. 6: DISSEMINATION AND EXPLOITATION

The tasks of this work package are grouped on two sections:

I. Dissemination:

a. Drawing up of dissemination & exploitation plan

b. Design and implementation of project web-site

c. Set up and update database of target audience (key actors / stakeholder)

d. Press releases, project presentation and scientific dissemination articles

e. Realisation of a demo of the course

f. Implementation of multiplier effect strategy (linking in relevant microfinance websites and blogs, linking in partners' websites, integration in partners' newsletter and feed RSS)

g. Participation to key national conferences

h. Participation to key international conferences

II. Exploitation:

a. Commercial agreement

b. Inclusion of the course in the didactic offer of UTGM, Planet Finance and MFC

c. Identification of new potential providers and users and meetings

d. Direct marketing

e. Final workshop

1.5. Course development

The T2 Course is available in English, French, Italian and Polish. The Experimentation phase has been organized in two sessions:

- On-line course with intelligent agent assessment. Each online module is supported on a presentation combining text and audio and concludes with a test controlled by the intelligent agent assessment.
- On-site face to face training sessions designed starting from the intelligent assessment results. The teacher provides a lesson offering up-to-date training and skills needed by the participant.

The T2 Course launched last March, with the delivery of the online modules, and ended in June with the on-site face to face training sessions.

1.6. Contents of the course

T2 course is an introductory course on Social Performance Management in Microfinance that is focused on the training needs detected during the research phase. The course contents are included in the following 6 modules:

- Module 1: Introduction to Social Performance Management
- Module 2: Aligning strategy for your Social Performance Management
- Module 3: Strengthening information systems for Social Performance Management
- Module 4: Aligning management systems to support Social Performance Management
- Module 5: Quality audit tool for managing social performance (QAT)
- Module 6: Social Performance Standards Report

1.7. Results of the course

46 Microfinance Institutions professionals were involved in the experimentation. They were from the following partner countries: Italy, France, and Poland. These professionals represent the course target group.

The experimentation phase has been useful in providing an external evaluation of the T2 course from a technological and methodological point of view. The experimentation phase offered an opportunity to test the didactical methodology and the adequateness of the contents for the target group. Through the participants during the experimentation of the T2 course, we collected feedback as:

- The course participants acknowledged the relevance of the topic for microfinance institutions.
- The case studies on Bosnia and the Philippines were also appreciated by the participants.
- In order to improve the effectiveness of the course, the participants suggested a deeper focus on the theoretical part of the course and an enhancement of the interactivity with more examples and case studies.
- While the technology of the intelligent agent seems to have been successful, the participants required more opportunities and a more diverse environment to concretely promote the discussions and dialogue between the teachers and the participants on specific problems they might have encountered.

2. E-course evaluation

The platform is a set of virtual tools the support the e-course development. The tools are the forum, the chat, the assignments, the learning path, the intelligent assessment. The testers have also evaluated the guidelines and tester protocol, the login, the navigation within the platform, the course description, and the documents and links.

2.1. State of the art

Bobes Díaz et alt. (1993), Howell & Nolet (2000) and McCormick & James (2006) developed a point of view about the curriculum evaluation in the school contexts. London: Routledge. Black, McCormick, James & Pedder (2006) linked the assessment to learning and learning how to learn. That perspective enriches the approach to the learning process as James (2008). Daugherty, Black, Ecclestone, James & Newton (2010) searched alternative perspectives on learning outcomes. As in schools, as in learning programmes, several approaches were developed to evaluate educational programme, centres and teachers to evaluation (Medina & Villar Angulo, 1995). Evaluation is sometimes related to research and measurement (Miller & Salkind, 2002). Babbie (2008) developed strategies for validation processes that could be applied to courses evaluation. The marketing field emphasizes also the evaluation and validation processes (Wrenn, Stevens, Loudon, and Loudon (2006).

2.2. Process

The evaluation team has organized a testing session. Five testers have been selected to ensure the tools. To help them, we have designed guidelines and a tester protocol. The guidelines allowed looking up their difficulties and problems. The tester protocol provided an itinerary to assure that they could test all the tools and their potentials. The tester protocol described tasks and actions to check all the available tasks of the tools. After each tool, the testers had to fill a section of the questionnaire about this specific tool.

The tester protocol makes easier the Internal Test of the e-Course of the T2 Project. This guide allows testers:

- To check the whole course systematically.
- To test the highest number of tools.
- To check the greatest number of their possibilities.

To take advantage in their task, we have advises them a methodology. However, they could personalize and adapt it to their preferences and habits. Our recommendations were:

- To read the whole guide to have a whole vision of the process.
- To focus the protocol step by step and realize the tasks for each tool one by one.
- To try them as tester. Not to suppose anything.
- To check it and observe the effects of their actions.

- To confirm that actions achieve the purposes that they were waiting.
- After testing each tool, to mark it as done in the protocol and fill the specific evaluation part. The questionnaire identifies them specifically.
- If they do not know anything, to look up the Guidelines User. Both documents have the same sequence of tools.
- If they discover other possibilities or uses that are not included in the questionnaire, to write about them in the open question for each tool.

As an example, we include the tasks for the section “Documents and links”. The testers had to check these tasks:

1. Open a folder
2. Return to the parent folder
3. Open the folder “reports_and_ratings”
4. Download the folder as zip file
5. Return to the root folder
6. Search a file with the word “report”
7. Open a document without downloading it
8. Return to the platform using the browser navigation control
9. Download a document to your computer
10. Repeat search with a nonexistent word as “reppport”
11. Search again a file with the word “report”
12. Try to open a document in another page with the right mouse button on its link
13. Try to download a document with the right mouse button clicking on Save link as…

After this section, there was a link to fill in the online questionnaire.

2.3. Purposes

The purposes of the internal e-Course evaluation were:

- To improve the e-course and the guide.
- To make easier the learning of the tools.
- To mend possible errors or confusions.
- To increase the coherence of the whole course.

2.4. Instrument

The instrument that we have chosen is a scale questionnaire with several questions about ten dimensions: login, navigation within the platform, course description, documents and links, forum, chat, assignments, learning path, intelligent assessment, and guidelines & tester protocol. Each dimension is related to a set of tasks that the testers had to do. The scale items of the questionnaire were from 1 to 5, considering the degree of agreement. In a scale from 1 to 5, the middle point is 3. We have added an "I don't know" option. After each dimension, there was the possibility to add other comments, suggestions, or further information about this dimension evaluation. The questionnaires were available on the web. Each questionnaire was filled by the testers at the end of each protocol section.

3. Results

3.1. Login

Login is the tool to identify the learner to allow the access to the learning platform. If he / she cannot access to the platform, there is an Authentication required form to get again the user name and password. There is also an email to contact the technical help desk.

The items of this dimension were (from the lowest to the highest mean):

- Changing to the English course is difficult.
- If I want to change my name, I know how.
- If you insert a wrong password, it is difficult to retry login.
- If I forget my password, it is difficult to recover it.
- The first screen is easy to understand.
- The login is easy to do.
- When I see the first screen, it is easy to know what to do.
- The logout is easy to do.

Other comments, suggestions, or further information about this dimension evaluation:

- "There is no information concerning with the possibility to change name."

The results make possible to state that:

- Most values are up to 4.60, except "If I want to change my name, I know how." (2.40).
- The negative values do not surpass 3.00 (middle point) except "If I forget my password, it is difficult to recover it." (3.33).
- In general, the login gives no troubles.
- It is necessary to pay attention to the change of name. Improve Guidelines.

- The wrong password and forgetting it seem to need more clarity (2 people do not know how to recover it).
- Changing to the English course is quite difficult for some users (2 people do not know how to do it).
- Improving Guidelines is needed.

3.2. Navigation within the platform

To navigate the platform, two methods are available: using a blue colour bar just below the course name on the left side of the screen, and using the drop down menu on the right side of the screen.

The items of this dimension were (from the lowest to the highest mean):

- I have problems with the platform.
- Returning to a previous screen is easy.
- The navigation is friendly.
- The navigation bar (left side) is very useful.
- The drop down menu (right side) is very useful.

Other comments, suggestions, or further information about this dimension evaluation:

- "More colours would be comfortable to read and navigate within the platform."
- "No problem with the navigation / platform, easy to manage."

The results make possible to state that:

- All the values are up to 4.60.
- The negative value - I have problems with the platform - is also very good (1.20).
- In general, the navigation within the platform gives no troubles.
- Only one tester does not know the navigation bar (left side). Improve Guidelines.

3.3. Course description

The course description is a general presentation of the course and includes a description, the targets, the topic list, the help desk contacts, the staff involved, the learning tools, etc.

The items of this dimension were (from the lowest to the highest mean):

- The description of the methodology is useful.
- There are mistakes in the course description.
- The description of the evaluation system is useful.
- The Course description is useful.
- The help desk contacts are useful.

- The description of the learning tools is useful.
- The description of the reading materials is useful.
- The description of the target group is useful.
- The description of the topic list is useful.
- The objectives are useful.
- The timing of the course is useful.

Other comments, suggestions, or further information about this dimension evaluation:

- "This document in general is too long, especially the part on the methodology - intelligent assessment path."
- "This part is too technical. Students will access the course for its content and not methodology per se. They are just interested that the methodology used is user friendly."

The results make possible to state that:

- All the values are up to 4.00.
- The negative item is also 4.00 ("There are mistakes in the course description."). It is necessary to improve it.
- In general, the course description gives no troubles.
- Perhaps, as it is commented, the text is too long as a whole one. Consider structuring it with sections.
- Consider reviewing the technical language with common words.

3.4. Documents and links

This tool allows teachers or tutors to upload useful documents or links for the student. The browsing of the material uploaded will not be traced.

The items of this dimension were (from the lowest to the highest mean):

- Returning to the root folder is difficult.
- Navigating in "Documents and links" is difficult.
- Clicking on a link is difficult.
- Searching documents is difficult.
- Downloading a folder as zip file is easy.
- Viewing the documents directly online is easy.
- The structure of the folders is useful.
- Downloading a document is easy.

Other comments, suggestions, or further information about this dimension evaluation:

- “Can't find a direct link to download a single file.”
- “We can add the microcredit summit campaign report on microfinance documents available on the web http://www.microcreditsummit.org/”

The results make possible to state that:

- All the values are up to 3.75.
- “Searching documents” & “Clicking on a link” seems quite difficult (3.25 & 3.20).
- Returning to the root folder and navigating in “Documents and links” seems easy (1.33 & 2.20).
- In general, the “Documents and links” give no troubles. However, one person does not know how download.
- Perhaps, you could consider improving Guidelines for downloading options.
- Consider the suggestion of new links.

3.5. Forum

The forum is a classical asynchronous communication tool. This forum has been set up for the communication among students and between teachers / tutors and students.

The items of this dimension were (from the lowest to the highest mean):

- Sending a message with a link is difficult.
- Sending a message with a picture is difficult.
- Using different format options in the text is difficult.
- The options after sending a message are useful.
- Searching a message is easy.
- The possibilities of the forum are useful.
- Replying a previous message (not the last one) is easy.
- Replying is easy.
- Seeing ever the whole text of the messages is useful.
- Getting the last message is a useful option.
- Creating a new topic is easy.
- Activating the notification by mail is useful.

There are no other comments, suggestions, or further information about this dimension evaluation.

The results make possible to state that:

- All the values are up to 4.25, except “The options after sending a message are useful.” (3.67).
- The negative items are very low, except “different format options” (2.33).
- In general, the Forum gives no troubles.

- Improve “different format options” in Guidelines.

3.6. Chat

The chat is a synchronous communication tool. It could be used by students and tutors.

The items of this dimension were (from the lowest to the highest mean):

- Copying and pasting a Word text with symbols gives a lot of trouble.
- Copying and pasting a unique paragraph of several lines as one message gives a lot of trouble.
- Copying and pasting several paragraphs gives a lot of trouble.
- The chat is useful.
- Sending a message is easy.
- Copying and pasting a web link as a message is easy.

Other comments, suggestions, or further information about this dimension evaluation:

- “I can paste only the first paragraph.”
- “Will we keep chat and forum?”

The results make possible to state that:

- All the values are up to 4.40
- All the negative items have low values.
- The chat gives no troubles. However, consider that we have no experience in real interaction situations.
- Different options and limits of “Copying and pasting” could be explained in Guidelines (one tester does not know how and it is difficult for some of them).

3.7. Assignments

The assignment is a tool that allows students sending answers or works about open questions, problems solving or case studies. The student submits them uploading a text file within the date fixed by the course tutor. The title of the work and the document to be uploaded are compulsory fields.

The items of this dimension were (from the lowest to the highest mean):

- The upload is difficult.
- Editing a previous submission is difficult.
- The feedback way is useful.
- Editing a previous submission is useful.
- The assignments are good tools to send a work.

Other comments, suggestions, or further information about this dimension evaluation:

- “Didn't understand how to use the feedback...”

The results make possible to state that:

- The values are up to 4.00
- The negative values are quite low.
- Assignment gives no troubles.
- Consider to explain better the feedback in Guidelines.

3.8. Learning path

This area is the main part of the platform together with the intelligent assessment session; it is divided in 6 didactic modules. Each one has a presentation supported on text and audio.

The items of this dimension were (from the lowest to the highest mean):

- Watching the full slide at once without animation could be useful.
- The voice is adequate.
- The voice is useful.
- The text is adequate.
- The animation of the text is useful.
- The synchronization between text and audio is adequate.
- The thumbs are useful.
- Further information in notes is useful.
- The structure in modules is useful.
- The information about the time spent in each module is useful.
- The way as the presentation begins is useful.
- The text is sufficient.
- The control on the voice is useful.
- The contents seem adequate.
- The “navigation control visualization” presentation is useful.
- The “full screen” presentation is useful.
- The text is useful.
- Jumping from one slide to another one is useful.
- Returning to the list of modules is easy.
- The search tool is useful.

Other comments, suggestions, or further information about this dimension evaluation:

- “I don't like the voice...”

The results make possible to state that:

- The values are up to 4.20, except “The voice is adequate.” (3.80).
- Some testers consider that watching the full slide at once without animation could be useful (3.40).
- The Learning path gives no troubles.
- One tester does not know “The “navigation control visualization” presentation is useful.”, “The search tool is useful.” and “Further information in notes is useful.”

3.9. Intelligent assessment

Sophia, the intelligent agent, provides assessment in the learning paths. She simulates the behaviour of teachers who submit an exam to students. The assessment is based on the answers quality and difficulty. She provides a particular evaluation path and gives both verbal and non verbal feedbacks (facial expressions) to each student. This area is also divided in 6 parts in accordance with the intelligent assessment paths.

The items of this dimension were (from the lowest to the highest mean):

A. About Sophia (the Intelligent Agent)

- The pronunciation is adequate.
- The speed is adequate.
- The voice is friendly.
- The feedback of Sophia is adequate.
- Sophia is nice.
- The size is adequate.

B. About the text:

- The syntax is adequate.
- The quantity of written text is adequate.
- The questions are relevant.
- The size of written text is adequate.
- The written text is useful.

C. About the process:

- The process is rather interactive.
- The time is enough.

- The evaluation allows me to learn.
- The questions provide good feedback about my knowledge.

D. About the control:

- I would like to choose the number of questions.
- I would like to choose the aspect of the intelligent agent.
- I would like to watch all the modules without order.
- I would like to choose the questions.
- I would like to repeat any question several times.
- I would like to stop the process sometimes.

E. About the information

- The information to manage the assessment is sufficient.
- The written information is adequate.
- The final statistical information allows me to perceive my progress.
- The oral information is adequate.
- The final statistical information about my answers is useful.

Other comments, suggestions, or further information about this dimension evaluation:

- Quality Audit Tool not Quality Assessment Tool.
- There's a bad synchronisation between the text and Sophia's voice.
- Sometimes she moves her lips but there's no sound.
- Her voice is too speedy when she gives the answers.
- Sometimes she keeps on repeating the same sentence specially when the answer is given or at the feedback. I think this is due to a bad synchronisation.

The results make possible to state that:

- Most dimensions are up to 4.00.
- Synchronisation is focussed in several comments. The speed adequateness is related to it (3.60).
- The pronunciation is in the middle point (3.20)
- The actual control possibilities are well accepted. New demands seem repeating any question several times (3.60) and stopping the process sometimes (4.20).
- The information to manage the assessment seems quite sufficient (3.80).
- The Intelligent agent no troubles.
- Consider reviewing the synchronization.
- Consider improving new control possibilities as repeating any question several times and stopping the process sometimes.

3.10. Guidelines & Tester protocol

Guidelines and Tester protocol are a sort of meta-evaluation, an evaluation of the evaluation, because these are means used by the testers. The Guidelines are a tool that provides autonomous help. The tester protocol is the instrument to guide the testing process and describes different tasks that they have to do to check most of the possibilities of the platform tools.

The items of this dimension were (from the lowest to the highest mean):

A. About Guidelines:

- The guidelines are comprehensive.
- The guidelines are useful.
- The guidelines are easy-to-use.

B. About Tester protocol:

- The tester protocol is easy-to-use.
- The tester protocol is useful.
- The tester protocol is comprehensive.

Other comments, suggestions, or further information about this dimension evaluation:

- Bad synchronisation in Intelligent assessment
- The synchronization of the Sophia's voice. Forum and chat are both necessaries? Maybe we could use only forum.

The results make possible to state that:

- All the items are up to 4.40.
- Guidelines could be improved in several sections.
- Guidelines could be improved mainly in Intelligent assessment and less in Documents and links, Forum, Assignments, and Learning path.

4. Conclusions

- In general, all the tools give no troubles.
- There are some suggestions to improve the Guidelines (see below), specially the Learning path options.
- There are some topics that are not well-known (see below).
- Consider structuring the course description with sections and simplifying the language.
- Consider the suggestion of new links.
- Consider the pedagogical integration of the tools in the course as a whole.

- Take car with the synchronization of Sophia's voice and the text animation.
- Consider improving new control possibilities for Sophia as repeating any question several times and stopping the process sometimes.

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Feliz Murias, Tiberio & Santoveña, Sonia: Evaluation and Quality in a European Project. The case of Added Value of teAching in a virTuAl woRld

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Abstract

Added Value of teAching in a virTuAl woRld is a project of European Lifelong Program, Leonardo Da Vinci. The project has a complex evaluation plan. Its goals are: to conduct evaluation of contents quality and customer satisfaction, to conduct evaluation of didactic methodology (product) and customer satisfaction, to conduct evaluation of project management (process), to conduct the evaluation of content quality (product), to conduct the evaluation of project work results, to draw up the quality & evaluation plan, to evaluate the project usability and transferability, to evaluate focus groups results, to identify management quality criteria and risks, to identify criteria to measure the effectiveness of the virtual methodology, contents quality, and didactic methodology, to set up the quality and evaluation team. The different instruments are designed according to the goals.

Each partner involved in an activity is an active agent of evaluation. However, we need to consider synthesizing and recapitulative agents, and the collaborative feedback. Every partner has to contribute by answering the evaluation instruments as the questionnaires in the internal evaluation process. Everyone could also facilitate data and information to evaluate his / her work package. When previewed, the instruments as questionnaires will be useful to collect data and elaborate reports. The different partners are the University of Hertfordshire, University of Southern Denmark, FH Joanneum, UNED, and BFU. The leader is Università Telematica "Guglielmo Marconi".

1. The project

Added Value of teAching in a virTuAl woRld (AVATAR) is a project of European Lifelong Program, Leonardo Da Vinci, Subprogramme Comenius. It is a two years project (2009). The lack of ITC use in teaching is a predominant issue in secondary schools throughout Europe. The project aims to enhance the level of ITC use in secondary education and to provide teachers with new methodological strategies and pedagogical tools supported on virtual worlds as Second Life. These virtual environments can be used as an innovative tool available for teachers and educators. It seems that these tools guarantee a more efficient teaching. The project has a complex evaluation plan and the different instruments are designed according to the goals.

1.1. Goals

- To conduct evaluation of contents quality and customer satisfaction
- To conduct evaluation of didactic methodology (product) and customer satisfaction
- To conduct evaluation of project management (process)
- To conduct the evaluation of content quality (product)
- To conduct the evaluation of project work results
- To draw up the quality & evaluation plan
- To evaluate the project usability and transferability
- To evaluate focus groups results
- To identify management quality criteria and risks
- To identify criteria to measure the effectiveness of the virtual methodology, contents quality, and didactic methodology
- To set up the quality and evaluation team

1.2. Timing

The AVATAR project has two fundamental phases:

A. Research

The first phase begins with a research and comparative analysis on existing virtual world platforms, testing the quality of their didactic laboratory features and functions. Based on research results, specific guidelines will be designed identifying a didactic methodology to use virtual worlds as a laboratory for educational purposes. The research output includes a selection of a virtual platform and guidelines representing a didactic methodology with exclusive reference to the different declensions of virtual world teaching.

B. Experimentation

A course for teachers on didactic methodology in a virtual world will be delivered on-line. It will be supported on an E-learning platform and a virtual platform. The course will cover the didactic contents of virtual worlds and the management and construction of virtual objects and laboratories. During the course, teachers will also be involved in developing a project work that will be subsequently used directly in the classroom with their students. The project work must incorporate a practical application of learned skills during the course for the creation of virtual laboratory implying the teachers' students.

1.3. Partners

The partners of the AVATAR project are:

- For.Com (Italy)

- FH JOANNEUM, University of Applied Sciences (Austria)
- Burgas Free University (Bulgaria)
- University of Southern Denmark (Denmark)
- Universidad Nacional de Educación a Distancia (Spain)
- University of Hertfordshire (United Kingdom)
- SOPH.ia In Action Consulting (Italy)

1.4. Organization

The project is organized in seven work packages:

WP1: MANAGEMENT - WP Leader partner For.Com

A. Tasks:

1.a: Set up of management board

1.b: Sign contracts between the applicant and project partners

1.c: Manage overall planning of the project

1.d: Management of project administrative aspects

1.e: Drawing up of monitoring tools

1.f: Collecting of project monitoring activity data

1.g: Drawing up of project interim and final report

1.h: Setting up of Kick off meeting with EACEA agency

1.i: Setting up of project Kick off meeting

1.l: Setting up of EACEA Interim meetings/workshops

1.m: Setting up of project Interim meetings

1.n: Setting up of final meeting

B. Deliverables:

- Handbook of Project Management
- Project Kick off meeting
- Project Interim and final meetings
- Report about mid-term results (end of each WP)
- Project final report

WP2: RESEARCH AND DIDACTIC - WP Leader Partner University of Hertfordshire

A. Tasks:

2.a: Setting up of research team

2.b: Desk analysis of European past projects concerning virtual world teaching (best practices)

2.c: Interviewing experts (e.g. project managers or project experts) in didactic methodology regarding Virtual Worlds from different countries

2.d: Desk research using an analysis grid (including a list of criteria to evaluate the platform features) in order to compare the different virtual world platforms

2.e: Setting up of the didactic team

2.f: Definition of the AVATAR cv course: the contents do develop for e-learning part and v-learning part, and the modality (synchronous / asynchronous)

2.g: Definition of learning objects number and type for the e-learning course

2.h: Definition of the didactic materials and number of virtual laboratories for the v-learning platform

B. Deliverables:

- Public: Teaching in a Virtual World past projects: Public Report with the list and description of past projects and the video interviews on DVD and DB online (2.a-2.b-2.c)
- RestrITCed : Most Effective V-platform for Teachers: A private report (2.d)
- Public: Didactic Methods to Teach using V-platforms: A manual concerning didactic teaching methods in a Virtual World (2.d-2.e)
- AVATAR curriculum (2.f)
- Course design chart (2.g-2.h)

WP3: TECHNOLOGICAL DESIGN AND PRODUCTION - WP Leader Partner University of Southern Denmark

A. Tasks:

3.a: Setting up of technological team

3.b: Identification of training E-platform requirements and structure

3.c: Definition of e-platform structure and sections

3.d: Setting up the e-learning platform

3.e: Develop the guidelines and work flows to produce the Learning Objects for the E-learning platform

3.f: Identification of v-location and v-laboratory requirements

3.g: Design the V-location and V-laboratory

3.h: Build the V-location and the V-laboratory

3.i: Produce Learning Objects for the E-learning platform

3.l: Produce contents and didactic materials for the didactic activities in the v-learning platform

B. Deliverables:

- Instructional design handbook: Guidelines and work flows to produce the Learning Objects for the E-learning platform. (3.a-3.e)
- RestrITCed : E-platform and V-platform design and technology (3.f-3.g)
- Public: AVATAR E-learning platform (3.d)
- Public: AVATAR V-learning platform and location (3.h)
- Public: AVATAR V-course and E-course for teachers (3.i-3.l)

WP4: EXPERIMENTATION - WP Leader Partner FH Joanneum

A. Tasks:

4.a: Setting up of experimentation Team

4.b: Define criteria to select schools and teachers

4.c: Promote the course for schools and teachers

4.d: Collect application forms

4.e: Screen the application forms and produce the final list of participants

4.f: Drawing up of the course calendar

4.g: Produce a Users Guide (for teachers) for the E-learning course and the v-learning course

4.h: Deliver the training course for teachers (i.e. asynchronous/E-learning, synchronous/Virtual learning through the virtual world) following the calendar

B. Deliverables:

- Selection procedures: Guidelines concerning the selection process for all partners (4.b)
- Public: User Guide to access the E and V platforms: Users guide (for teachers) for the E-learning platform and the V-learning platform (4.g)

WP5: DISSEMINATION - WP Leader partner For.Com

A. Tasks:

5.a: Draw up of dissemination and promotion strategy

5.b: Design and develop the project Web site (multilingual web site: partners provide the contents translation in their country language)

5.c: Update Web site contents (all partners helps For.Com sending news, events)

5.d: Promote and realize local events (one in each partner country) that will promote and present the project (e.g. aims, objectives, etc.)

5.e: Organize an event presenting the course on the Virtual platform in order to select teachers for the course

5.f: Design and distribute the Project brochure

5.g: Design and distribute the Course brochure

5.h: Design and distribute a quarterly Multilingual E-newsletter (at the beginning of the project each partner will develop a distinct e-newsletter mailing list)

5.i: Organize and realize a Virtual World event to present the project results

5.l: Compose and publish press release concerning AVATAR:

5.m: Compose papers in order to participate in thematic conference

5.n: Participate in key thematic conferences (at a national and international level)

B. Deliverables:

- Dissemination and promotion plan
- Public: AVATAR Website
- Public: Local events to promote project and course: 5 local events
- Public: Virtual Event to promote project and course: 2 virtual events
- Public: Multilingual Project brochure
- Public: Multilingual Course brochure
- Public: E-Newsletters: 8 multilingual E-newsletters
- Public: Press release: 1 to promote the course
- Public: Scientific Papers: conference papers
- Public: International conferences: 6 project presentations at thematic conferences

WP6: QUALITY AND EVALUATION - WP Leader partner UNED

A. Tasks:

6.a: Set up the Quality and Evaluation Team

6.b: Identification of management quality indicators and risks

6.c: Draw up the Quality & Evaluation Plan

6.d: Conduct evaluation of project management (process) filling in of checklist and record grid/sheet

6.e: Identify indicators to measure the effectiveness of the virtual methodology and contents quality

6.f: Conduct evaluation of didactic methodology (product) and customer satisfaction; questionnaire to experimental group

6.g: Conduct evaluation of contents quality and customer satisfaction; questionnaire to experimental group(product)

6.h: Evaluation of project usability and transferability: 1 focus groups among experimental group users

6.i: Focus groups results evaluation

B. Deliverables:

- Quality and Evaluation Plan

- Evaluation report concerning the Management: Evaluation report (template and final version) concerning the management process
- Public: Evaluation report V-course methodology and contents: Evaluation report (template and final version) concerning the didactic methodology, the contents quality and the project work results, the usability and transferability

WP7: EXPLOITATION - WP Leader partner BFU

A. Tasks:

7.a: Set up the Exploitation Team

7.b: Draw up the Exploitation Plan

7.c: Identify long term beneficiaries and other target groups for future exploitation (local and national school organizations, Ministries of Education, etc.)

7.d: Project promotion by delivering of materials to the list of key actors at key thematic international/national conferences (1)

7.e: Organize a final plenary workshop with decision makers (for future exploitation)

7.f: Define and sign commercialisation contracts between the applicant and the partners

B. Deliverables:

- Exploitation Plan
- Key stakeholders map
- Public: Final Workshop
- Commercialisation agreement

2. Quality and evaluation

The Evaluation and Monitoring Plan is an instrument to guide the evaluation and monitoring activities during the whole of the project. In particular, it focuses the evaluation of the project quality (management efficiency) and the evaluation of the product quality (didactic effectiveness), seen from the perspective of the end users (teacher and student).

Usually, evaluation and monitoring activities are being carried out through the delivery of questionnaires and reports. Several questionnaires will be prepared to monitor different features of the project, and to check the achievement of the project goals. The products will be evaluated with specific ad hoc protocols. That means that specific instruments as questionnaires are being designed to evaluate each product in accordance with its features and characteristics.

The evaluation will be carried out at different levels and with ad hoc evaluation instruments and efficient strategies of monitoring. According to the Project Gantt, the Quality and Evaluation Plan is the Work Package 6 that has a chronological development throughout the two years of the Project length.

The Evaluation and Monitoring Plan has got five main sections that we are describing.

2.1. General criteria

The plan has to focus on every process and product of the project. Therefore, we have to consider the project as a whole, with permanent strategies for monitoring. Moreover there is a specific moment of balance and reviewing of the achievement of goals, in light of the obtained results in the different phases of the project. The general criteria are:

- Monitoring the process: The evaluation has to take into account the processes in relation to the results.
- Appropriateness: The result is in accordance with the goals.
- Adequateness: The content is in accordance with quality parameters.
- Collaboration: The process has taken account of the responsibilities of the partners, including the lead partner and the exchanges between them.

2.2. Quality and Evaluation Team

According to the project proposal, WP 6 is monitored by the Quality and Evaluation Team, who is in charge of defining an evaluation and monitoring report template and the tools to be used for evaluation activities (grids, questionnaires, etc.). Great emphasis will be placed on the identification of specific Criteria that measure the didactic effectiveness and satisfaction of participants in the training course. For this specific task, close cooperation between the Research team, the Technological Team, the Experimentation Team, and the Quality and Evaluation Team will be ensured.

The Quality and Evaluation Team is made up by one participant from each partner institution and an external expert.

2.3. Instruments

The evaluation instruments are developed in accordance with each goal and activity:

a. To conduct evaluation of customer's satisfaction:

Instrument: questionnaire to experimental group (product)

b. To conduct evaluation of didactic methodology (product) and customer satisfaction:

Instrument: questionnaire to experimental group, supplemented by interviews based on questionnaire results

c. To conduct evaluation of project management (process):

Instrument: checklist and questionnaires

d. To conduct the evaluation of content quality (product):

Instrument: questionnaire to experts and experimental group

e. To conduct the evaluation of project work results:

Instrument: questionnaires to activities participants

f. To draw up the Quality & Evaluation Plan:

Instrument: Validation questionnaire

g. To evaluate the project usability and transferability:

Instrument: one focus group among experimental group users and questionnaire

h. To focus group results evaluation:

Instrument: content analysis and questionnaire

i. To identification of management quality Criteria and risks:

Instrument: Criteria grid and checklist

j. To identify Criteria to measure the effectiveness of the virtual methodology, contents quality, and didactic methodology:

Instrument: Criteria grid and checklist

k. To set up the Quality and Evaluation Team:

Instrument: collaborative decisions

2.4. Specifications for each work package

For each work package, there is a description of the specific criteria and instruments for each specific task. For instance, the Project Management (WP1) has got these specifications:

Code	***MANAGEMENT*** ***WP Leader For.Com***	***Criteria***	***Instrument***
1.a	Set up of management board	• List of board members with contact details	I[355]
1.b	Sign contracts between the applicant and project partners	• Signed contracts	I^3
1.c	Manage overall planning of the project	• Developed tasks and timeline with milestones and deadlines	Evaluation and results

[55] I^3 = the Indicator Is the Instrument.

Code	MANAGEMENT WP Leader For.Com	Criteria	Instrument
1.d	Management of project administrative aspects	• Formalities and deliverables achieved in accordance with the planned delivery dates	I[3]
1.e	Drawing up of monitoring tools	• Developed tasks and timeline with milestones and deadlines	Monitoring tools
1.f	Collecting of project monitoring activity data	• Set of data	Report
1.g	Drawing up of project interim and final report	• Set of data	Project interim and final report
1.h	Setting up of Kick off meeting with EACEA agency	• Appropriate preparation • Satisfying development • Goal achievement • Solved problems • Participative making decision • Future tasks planning	Questionnaire and report
1.i	Setting up of project Kick off meeting		Questionnaire and report
1.l	Setting up of EACEA Interim meetings/workshops		Questionnaire and report
1.m	Setting up of project Interim meetings		Questionnaire and report
1.n	Setting up of final meeting		Questionnaire and report

2.5. Agents and functions

Each partner involved in an activity is an active agent of evaluation. However, we need to consider synthesizing and recapitulative agents, and the collaborative feedback. Every partner has to contribute by answering the evaluation instruments as the questionnaires in the internal evaluation process. Everyone could also facilitate data and information to evaluate his / her work package. When previewed, the instruments as questionnaires will be useful to collect data and elaborate reports.

When possible, the involvement of users, learners, teachers and experts will enrich the evaluation process. While the partners contact is quite permanent, the evaluation based on collaborators has to be focussed in the times when they are involved in the project activities to ensure their feedback. This is why the meetings and in-presence sessions are relevant opportunities to collect their evaluations.

Evidences are very well valued in the reports. The partners have to consider enriching the reports with photos, news, or any kind of documents that show the facts and their relevance.

Moreover, the partner responsible for evaluation has to do a whole monitoring of the process, a systematic application of evaluation instruments, and an integration of the different evaluation sources.

We hope that each partner understands the importance of the evaluation process and is collaborating to improve the process and to ensure the results. We thank you in advance for your collaboration.

3. Validation process

To design the Evaluation and Monitoring Plan, the person in charge from UNED has elaborated a draft version and has implied the Evaluation and Monitoring team in its validation. We are describing the design, the process, and the results of this specific validation.

3.1. State of the art

There is a long tradition about the validation process in the research field. For instance, Miller & Salkind (2002) developed a handbook of research design and social measurement. They explain the validation strategy to design questionnaires in the design and social field. McNabb (2004) developed research methods and strategies for political science. As in quantitative, as in qualitative methods, they indicate specific ways to validate instruments. Schwab (2005) applied research methods for organizational studies and explained the validation process of research instruments. Recently, Babbie (2008) developed the basics of social research, including references to the validation processes. In the marketing field, Wrenn, Stevens, Loudon, and Loudon (2006) studied the research strategies and presented cases about the construction and validation of instruments.

3.2. Design and process

The person in charge has prepared a specific presentation to validate it. This presentation includes three scale items for each element of the Evaluation and Monitoring Plan. These items are in accordance with the goals of the validation: to assure the adequateness of the formulation of the evaluation strategies, to guarantee the appropriateness of the evaluation means for the tasks and products of each work package, and to check the accordance with the Project goals. With this design, we could improve a good selection, the usefulness of the evaluation, and the internal coherence.

The scale items were from 1 to 5, considering the degree of agreement (1 is the minimum; 5 is the maximum) and an “I don't know” option. After each dimension, there was the possibility to explain the value, specially when it is low.

For instance, for the task 1.f (WP1), the presentation of the validation items is:

1.f	Collecting of project monitoring activity data	• Set of data	Report	*It is according to the Project goals.*	
				The criteria are coherent with the tasks.	
				The instrument is adequate.	

Could you suggest some changes? *Write here.*

The validation protocol was sent to each member of the quality and evaluation team in a word processor format to provide an opportunity to write inside the document and to make easier the sending back.

3.3. Results

a. Which is the percentage of answered items?

The maximum of answers were 165. The average was 137 answers. The percentage was 83.03% of possible answers.

b. Is there any possibility of contamination among the items about a same ask?

The three main indicators were the accordance with the Project goals, the coherence of the evaluation criteria with the tasks, and the adequateness of the instruments. The contamination would be detected if the value in any of the indicators influences on the other ones. We calculate the correlation between them to detect if there is any contamination:

- Correlation between accordance with the Project goals and coherence of the evaluation criteria with the tasks: -0.16
- Correlation between coherence of the evaluation criteria with the tasks and adequateness of the instruments: 0.33
- Correlation between adequateness of the instruments and accordance with the Project goals: -0.10

In conclusion, all the correlations are too low and demonstrate that here is no correlation at any time. Consequently, there is no contamination among hem.

c. Which are the differences among the indicators?

We have calculated the whole average of each indicator. All of them have been valued at least once with the maximum. We have analyzed the occurrence of maximum values and the minimum in each indicator:

- Correlation between accordance with the Project goals: the minimum value was 4.50 and it was valued 52 times with 5.
- Coherence of the evaluation criteria with the tasks: the minimum value was 3.33 and it was valued 26 times with 5.
- Adequateness of the instruments: the minimum value was 3.67 and it was valued 41 times with 5.

d. Which are the tasks with critical values?

One item was valued with 1: Interviewing experts (e.g. project managers or project experts) in didactic methodology regarding Virtual Worlds from different countries (2.c). One of the testers thinks that the instrument is not so adequate.

Three items were valued with 2 about the criteria coherence with the tasks: Manage overall planning of the project (1.c), Management of project administrative aspects (1.d) and Drawing up of monitoring tools (1.e).

e. Which are the evidences that motivate a specific analysis?

The low scale values are indicial that indicate some possible problems. As the values are quite high, we have analyzed specially the values under 3 or 3 (3 is the middle point in a scale from 1 to 5). That means 25 cases to study in the whole analysis (165 items to analyse).

However, the low values only manifest a low valuation but not the reason. The open questions provide useful information about them. There were 38 suggestions to modify some aspects of the criteria or instruments.

f. Which were the changes in the formulations?

The low values or / and the change suggestions are not compulsory. You have to analyze the basis and justify if there are enough reasons to change or to maintain the content or the formulation as it is. At least, we have changed 61 elements in the criteria or instruments.

There were 50 changes in the criteria formulation. There were 5 enlargements, 23 added fragments, and 22 corrections. Enlargements are texts that increase inserting words and ideas; For instance, the criterion for task 1.c was: Developed tasks. After the change, it was “Developed tasks and timeline with milestones and deadlines”. Added fragments are situations in which new ideas are added to the first ones; For instance, the criterion for task 2.b was “Appropriate preparation, Adequate form, Useful contents, Fruitful collaboration and knowledge sharing between partners (last one), Appropriate preparation, Adequate form, Useful contents”. After the suggestions, we have added “Fruitful collaboration and knowledge sharing between partners”. The correction is a situation when the spelling is changed; For instance, one criterion for task 3.e was “Structure and functionalities according to with WP2 requirements and demands”; After the change, it was “Structure and functionalities in accordance with WP2 requirements and demands”.

There were 11 changes in the instrument formulation. There were no enlargements, 9 added fragments, and 2 corrections. For instance, in the task 3.d, “Description of target group requirements” was added to the first one “Description card”.

4. Conclusions

- The Evaluation and Monitoring Plan is a useful instrument to guide the evaluation and monitoring activities during the development of the project.
- The Evaluation and Monitoring Plan can be validated in accordance with the usual strategies applied to questionnaires in the research field.
- The validation process based on the experts’ collaboration allows the improvement of the plan as in the criteria, as in the instruments formulation.
- No contamination was detected with the applied strategy.
- The low values are critical data to detect possible problems and have to be analyzed instead the averages that are usually quite high.
- The open questions provide also many opportunities to detect the problems and to collect suggestions to improve the instrument.
- There were three kinds of changes: enlargements, added fragments, and corrections.

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Gil-Jaurena, Inés: University Strategies for Lifelong Learning in Higher Education. The UNED case

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Abstract

Framed under the EADTU-USBM project (University Strategies and Business Models for Lifelong Learning in Higher Education Project, ref. 142267-LLP-1-NL-ERASMUS-EV), this paper presents the case of one of the participant partners, UNED (Spanish National University of Distance Education). According to the project objectives and tasks, a report about the educational and learning practices provided by UNED in the frame of lifelong learning has been developed; this paper focuses on the description and analysis of selected practices, those which are specially interesting and/or successful. The format of the presentation will include contextualization, description of the experiences at different levels (audience, type of educational and learning practice, organization, etc.), analysis of the experiences (success factors, obstacles, etc.), as well as a general reflection about lifelong learning at the biggest public university in Spain.

Introduction

The European Commission defines lifelong learning as "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective."[56].

When the expression lifelong learning is used in the USBM project (Watkinson and Tinoca, 2010; USBM, 2010), we are referring to the part of this activity undertaken by adults, having left initial education and training. Our interest is in the continuing education and training of people at higher education level through structured courses or activities offered by Institutions of Higher Education.

Within this frame, the paper focuses in the UNED case, expanding on the description and analysis provided in the USBM reports about this Spanish University.

56 "Making a European Area of Lifelong Learning a Reality", November 2001, p.10, cited in Watkinson and Tinoca, 2010: 6

Contextualization

UNED is an almost 40 years old University, which works at a national scope and is the biggest public university in Spain.

Lifelong learning (LLL) is an increasing concern at different political and organizational levels. The European framework has been acknowledged in the USBM project reports (Watkinson and Tinoca, 2010; USBM, 2010). Given than this paper has been developed within that frame, I will focus on the national and institutional frame regarding LLL that surrounds the UNED case.

Spanish policy framework regarding LLL

In Spain, at the moment there is no national strategy, policy or framework specifically aimed at Life Long Learning, nevertheless LLL is a concern and is mentioned and addressed in policies or frameworks regarding Vocational Training, general Education, and Higher Education. LLL is one of the topics being discussed in order to promote it at all levels, but specially at the adult level (vocational training and professional development, …), not necessarily linked to university education. In fact, the Spanish Ministry of Education is debating and working nowadays in the development of a National Plan for LLL, under a new organism (General Subdepartment for Lifelong Learning) that has been created within the General Directorate for Vocational Training.

For instance, lifelong learning has been explicitly addressed in the policies regarding vocational training[57] (*Formacion profesional*):

> *"One of its objectives is to promote life-long continuous training, transference among differing professional activities, and recognition of professional competences built through work experience or non formal education. Furthermore, qualifications (diplomas, certificates) are intended to adequately prepare students for the requirements of the information and knowledge society, facilitating and stimulating international mobility of students and workers".*

The educational policy framework for non-university levels, LOE-Organic Law of Education (MEC, 2006), refers to LLL to some extent, as follows:

> *Thus, society as a whole must support the educational system and create the setting to promote personal life-long learning (…)*

57 Website on the Reform of Vocational Training, Ministry of Education: **http://educacion.es/horizontales/iniciativas/reforma-fp.html**

> *(...) Education and training must be conceived as a permanent, long-life process. Although learning has traditionally been associated with childhood and youth, nowadays this approach is clearly insufficient. Today we know that the ability to learn is sustained throughout throughout the years, even though the way in which we learn and the motivation to keep pursuing education may change. It is also known that socio-economic changes are creating new needs, forcing citizens to continuously undertake further training. As a consequence, attention to adult education is increasingly taking place* (MEC, 2006: 17160).

It goes on to state the objectives of LLL and what it implies in the context of formal education, highlighting the importance of a flexible education system, in order to allow for different paths (not just one-way, within a rigid structure, as it has been traditionally) and providing further opportunities to those who had to quit school early, as well as to adults, who want to pursue continuing education and training.

> *According to the principles underlying this Law, education is conceived as a life-long, permanent learning process. All citizens must be given the possibility to pursue further education within and outside the formal education system, in order to develop, update, complete and increase their abilities, knowledge, skills, and aptitudes for their personal and professional development. The Law grants such relevance to life-long learning that it devotes a specific chapter to it, alongside organizational structure of the educational system in the Preliminary Title* (MEC, 2006: 17162) [See Chapter 2 of LOE].

At the University level, the legislation (MEC, 2001; 2007) does not refer to LLL, but to lifelong training (*formación a lo largo de la vida*), at the beginning of the Law, when mentioning the European Higher Education Area.

Institutional UNED framework

Regarding how UNED has responded to that existing framework, this University has been committed to LLL since its origin in 1972, offering continuing training (*formación permanente)*. Both through regular 3 or 5 year degrees (*enseñanzas regladas*: undergraduate and postgraduate programmes) and shorter courses (certificates: expert, specialist, master's, teacher training, language courses, etc.).

In the last years a higher number of courses under the Professional Development Programme have been developed, and they have been increasingly demanded by students.

About the terms, as it happens in the national policies, the mission statement (UNED, 2005) does not use the terminology LLL, but refers in different occasions to permanent education and training, professional actualization, etc., with the same underlying principles as LLL.

Besides the general structure of UNED, committed to lifelong learning through the offered degrees and courses, two specific units are wholly concerned with LLL considered as those educational programmes addressed to adult students beyond regular degrees. These units and stakeholders are the Vice-Rectorate of Continuing Education and University Extension (*Vicerrectorado de formación continua y extensión universitaria*) and UNED Foundation (*Fundación UNED*).

- The cited Vice-Rectorate[58] manages cultural activities, sports, university extension courses, CUID (language learning), UNED Senior and UNED continuing training programmes.
- UNED Foundation[59], in relation with LLL, manages some of the educational programmes described in the next section.

These structure is in way of changing for school year 2010-11, so there will be just one organism in charge of the management of the continuing education. It is expected that this measure will facilitate the optimization of the offer and improve the quality of the organizational aspects.

Among other stakeholders implied in the continuing education and LLL at UNED, Professors and Departments are encouraged every year to renew or increase the offer of continuing education courses, including up to date knowledge, result of their researches, recent materials, etc. In postgraduate courses (master, expert, teacher training programme, …): a part of the incomes is managed by the course director (for self payment, payment to collaborating professors, acquisition of books or other materials, etc.).

Continuing education programmes are regulated by a specific regulation[60], where it is stated that

> Article 16
>
> (…)
>
> *2. University, through its competent units, will develop systematic and individualized evaluation of the offered courses and programmes.*

Among these measures, students are encouraged to respond to a final questionnaire for the evaluation of each course. Also course directors are encouraged to respond to an evaluation questionnaire.

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58 Vice-Rectorate of Continuing Education and University Extension: **http://portal.uned.es/portal/page?_pageid=93,328345,93_20548648&_dad=portal&_schema=PORTAL**

59 UNED Foundation: **http://www.fundacion.uned.es**

60 Regulation of continuing education programmes at UNED: **http://portal.uned.es/portal/page?_pageid=93,868668,93_20541682&_dad=portal&_schema=PORTAL**

About financial aspects, funding is provided by national government general grant (as UNED is a public institution), as well as specific grants from the regional centers. The latter vary depending on the region and on the courses. Some programmes (institutional courses or courses on demand, postgraduate courses on specific topics, etc.) may get extra funding or scholarships from private institutions, enterprises, foundations, etc.

Regarding the costs of the continuing education courses, it depends on the programme, but in general they are self-financed, that is, student fees cover the extra costs of course production and presentation, collaborating professors, text and other materials, etc.

In UNED Senior, the costs are covered by students tuition and government funding. In this case each Regional Center covers the salaries of the professors who deliver the courses at the Regional Center.

LLL-student profile at UNED[61]

Regarding the definition of a LLL-student, there is no distinction between LLL and "ordinary" students at UNED. All students can be considered as LLL students (they are all adults in higher education, according to the working definition assumed in the USBM project).

Despite the focus of the USBM project and this paper is on the continuing education programmes, some data about official undergraduate and postgraduate degrees and the students profile are presented in this section.

The number of students enrolled in official degrees/studies at UNED in school year 2007-08 was distributed as follows (some data on year 2008-09 are provided as well):

- Number of students: total 169.421 (2008-09)
    - Course for access to university for people over 25 years: 15.146
    - Official undergraduate degrees: 134.179
        - 3 years degrees: 42.286
        - 5 years degrees: 78.677
        - 2 years degrees (after a 3 year degree): 13.216
    - Doctorate studies: 3.493
    - Official Postgraduate degrees (adapted to the European Higher Education Area): 564 (1.727 in 2008-09)

61 Most information in this section has been retrieved from: Oficina de Planificación y Calidad de la UNED, 2009, and Vicerrectorado de Planificación y Asuntos Económicos de la UNED, 2009

Regarding the design and implementation of postgraduate courses, a demand research is usually developed, through online questionnaires to undergraduate students, former students, tutors and employers. This analysis of the demand is used both to justify the implementation of the courses and to design their contents.

Among the questions to be answered in the research, some of them refer to what kind of methodology would be preferred (distance education is highly preferred) and the informants are requested to say if they would like to study the course at UNED, being an affirmative answer the most frequent.

About gender and age, in school year 2008-09 (official degrees), 51,4% were women, and the ages of students were the following:

<25 (12,9%)

26-35 (45,9%)

36-45 (28,7%)

46-55 (10,2%)

56-65 (1,7%)

>66 (0,3%)

The average number of credits each students was studying in 2008-09 in official degrees was 35,97 which means a percentage of 59,9% of the total credits that they could be studying if they were full time students (extracted from table 12, Vicerrectorado de Planificación y Asuntos Económicos de la UNED, 2009).

53,2% of the students state that they are also working. The range of occupations is very diverse, both in the public and the private sector (administration, companies, etc.). We can even contend that UNED students have occupations in almost any field in the labour market. In some Faculties (or Schools), many students occupy jobs which are related to the degrees offered. For instance, students enrolled in the Faculty of Education usually have occupations in the education arena, both formal and non-formal (teachers, guidance workers, social educators, head teachers, etc.), but not necessarily. There are many students working in clerical jobs, or other types of jobs, who want to study a degree related to their interests, even if not to their actual occupation. In some cases their goal is just to study and obtain the qualifications desired, but in others they plan to change jobs, to pursue a career in relation to what they are studying. There are also many students who are unemployed, or who do not work outside their home.

74,71% are studying for undergraduate awards and 12,46% for postgraduate awards. In this case postgraduate includes doctoral studies, official master's, and continuing training programmes. CUID (language learning) is not considered in these figures.

In relation to continuing education and CUID, the Vice-Rectorate of Continuing Education and University Extension provides the following figures (table 1). The trend is the stabilization of the number of students around 20000 per year.

Table 1. Number of courses and students in the continuing education programme at UNED, school years 2007-08 and 2008-09

Name of the programme	Number of courses	Number of students 2007-08	Number of students 2008-09
Specialization	138	5463	5051
Specialization: Modular structure	48	2875	2654
Teacher training	199	3185	2984
Open training	185	3534	2476
Professional development	76	3412	3444
Health area	25	2635	2600
	Total courses: 671	Total students: 21104	Total students: 19200

Description of the LLL programmes and activities at UNED

There are different programmes and activities going on at UNED within the frame of a LLL philosophy.

Besides the official and regular degrees offered by UNED[62], there are different initiatives that cover various needs in adult education. A summary and brief description of each of these programmes and activities is provided below (in the former section about students profile there are some data about number of students in each programme).

62 Official and regular degrees at UNED:

- Undergraduate studies: diplomatura, ingeniería técnica (3 years), licenciatura, ingeniería superior (5 years), grado (4 years, adapted to the European Space of Higher Education)
- Official postgraduate and doctoral studies: doctorado, máster oficial

a) The University offers a number of other awards as part of its continuing education programmes, managed by the Vice-Rectorate of Continuing Education and University Extension and/or UNED Foundation. These include:

a.1. Postgraduate studies

a.1.1. Specialization programme[63]:

Master, specialist and expert certificates (not official degrees)

Award: there are three levels: Master's (minimum 60 ECTS credits, maximum 120 ECTS credits); Specialist (minimum 30 ECTS credits) and Expert (minimum 20 ECTS credits).

Access prerequisites: to hold a university graduate degree or equivalent

a.1.2. Teacher training programme[64]:

Distance education programme for teachers or teacher trainees(certificates with official recognition for teachers by the Ministry of Education, valuable for competitive examination for a teacher position in public educational centres)

Award: diploma (12 ECTS credits).
Access prerequisites: to hold a university graduate degree or equivalent

a.2. Actualization of knowledge studies (open training and professional development programmes)

a.2.1. Open training programme[65]
Distance education programme.

Award: diploma (12 ECTS credits).
Access prerequisites: no access prerequisites

a.2.2. Professional development programme[66]

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63 Specialization programme: http://apliweb.uned.es/guia-cursos-eduper/folleto/especializacion.asp?curso=2010

64 Teacher training programme: http://apliweb.uned.es/guia-cursos-eduper/folleto/profesorado.asp?curso=2010

65 Open training programme: http://apliweb.uned.es/guia-cursos-eduper/folleto/e_abierta.asp?curso=2010

These courses are promoted by social and economic entities which seek an academic support from a University to provide best quality training and promotion actions for their professional groups. These courses satisfy a training demand as a response to needs and interests of the working environment. The Programme is managed by the UNEd Foundation.

Award: professional expert diploma (courses with 20 ECTS credits) or professional actualization diploma (courses with 12 to 19 ECTS credits).
Access prerequisites: no access prerequisites

a.3. Training in the area of health[67]

This Programme offers different courses in relation to the Health Sciences. The topics vary from technology in medicine to clinical psychology, nutrition or legal issues related to health. The Programme is managed by the UNED Foundation.

Award: there are five award levels: Master's (minimum 60 ECTS credits, maximum 120 ECTS credits); Specialist (minimum 30 ECTS credits) and Expert (minimum 20 ECTS credits), Professional expert (courses from 20 ECTS credits) and Professional actualization (courses with 12 to 19 ECTS credits).
Access prerequisites: depending on the award level prerequisites vary from holding a university graduate degree or equivalent to no access prerequisites.

b) CUID: language learning[68]

UNED also offer distance education programmes aimed at promoting the learning of the official languages in Spain (Spanish as a foreign language, Catalan, Basque, Galician) and foreign languages (English, French, German, Italian, Arabic, Chinese, Portuguese, Russian). UNED offers these programmes through an specific Distance Language Education Center (CUID: Centro Universitario de Idiomas a Distancia).

Each course lasts from November to May (150 hours).

Award: UNED non official certificate, adapted to the European Common Frame for Languages. ECTS recognition for official degrees.

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66 Professional development programme: **http://apliweb.uned.es/guia-cursos-eduper/folleto/desarrollo.asp?curso=2010**

67 Training in the area of health: **http://apliweb.uned.es/guia-cursos-eduper/folleto/a_salud.asp?curso=2010**

68 CUID: **http://portal.uned.es/portal/page?_pageid=93,154330&_dad=portal&_schema=PORTAL**

c) UNED Senior[69]

Face to face courses for people over 55 years. It is a training programme that covers relevant current topics and strategies for personal development. Running since 2008, no access prerequisites.

In this case, there was a training demand for senior people which had been expressed to the Regional Centers (UNED support institutions located in different towns in Spain and abroad and with the task, among others, of enriching the cultural activity in the region).

Different universities in Spain have developed specific programmes for senior people in the last years (Gil Jaurena, 2010), and UNED had been requested to do so by its Regional Centers, which depend on UNED and on Regional or Local governments. A special partnership has been developed among UNED and some Regional Centers for this programme. The number of Regional Centers participating in the programme has increased in its second year of existence (UNED, 2009).

d) University extension programme

UNED also offers courses for which students receive certificates of participation. These include:

d.1. Courses in the University extension programme[70]

Face to face short courses, seminars, congresses, etc. presented in different locations in Spain (UNED regional centers or faculties) throughout the year

Framed by the Vice-chancellor of continuing education and university extension.

Award: certificate of participation, sometimes it gets recognition as academic credits in regular degrees (ECTS).

Access prerequisites: depending in the activity.

d.2. Summer courses[71]

Face to face short courses and workshops in different locations in Spain (UNED regional centers), in June, July, August, September.

Decisions as to which courses to present are usually informed by a training demand expressed to the Regional Centers (UNED support institutions located in different towns in

69 UNED Senior: **http://www.uned.es/senior**

70 University extension programme: **http://portal.uned.es/portal/page?_pageid=93,14058322&_dad=portal&_schema=PORTAL**

71 Summer courses: **http://portal.uned.es/portal/page?_pageid=435,1&_dad=portal&_schema=PORTAL**

Spain and abroad and with the task, among others, of enriching the cultural activity in the region). Costs are covered by UNED and government grant and tuition fees and, in some cases, extra financing by regional governments, private institutions, foundations, trade unions, etc.

e) Open Educational Resources[72]

UNED also makes some of its courses available on its website as Open Course Ware (OCW). Students can study these materials for free. There is no registration, no deadlines and no award. These courses are uploaded by professors on the UNED website for free use. They collect resources, didactical guides, exams, bibliographies,etc.

f) Reading club[73] (Club de lectura)

The University runs a reading club to promote reading and the exchange of opinions, etc. about suggested authors and readings. It is managed by the Vice-Rectorate of Continuing Education and University Extension under the cultural activities programme, and it is open to all the University Community.

g) "On demand courses", institutional courses

"On demand courses": trade unions, associations, … develop their distance courses using the virtual platforms at UNED. Sometimes UNED also provides the contents and/or professors, other times only the technical support. It depends on the agreement/partnership.

Table 2 provides a summary of information regarding the acknowledged LLL programmes at UNED. The last column includes information about what makes the programme or activity successful. The keys for interpreting that question about success factors:

1- the course fills a gap in the market;

2- the course is high quality and informed by the latest research;

3- the course is easily accessible;

4- there are no qualifications for entry;

5- fees are affordable;

6- the teaching is done at a time and place and through media which best suits the students;

7- the accreditation is valued;

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72 Open Educational Resources: **http://ocw.innova.uned.es/ocwuniversia**

73 Reading Club: **http://clubdelectura.uned.es/clubdelectura/xowiki/**

8- the stakeholders collaborate in the production and/or delivery of the course;

9- the infrastructure is first class

Table 2. Examples of practice at UNED regarding LLL

	Discipline	Level/Award	Running since	Average number partici-pants (08-09)	Cost/Fee (09-10)	Success factors
a) Continuing education programme						
a.1- Postgraduate studies						
a.1.1- Specialization (including modular)	Several	Master (60 -120 ECTS); Specialist (min. 30 ECTS) and Expert (min. 20 ECTS)		7705	Depen-ding on the course	1, 2, 3, 6, 7, 8
a.1.2- Teacher training programme	Several, but addressed to Education	Diploma, 12 ECTS		2984	Fee: 281,23 € (six months)	1, 2, 3, 5, 6, 7, 8
a.2- Actualization of knowledge studies						
a.2.1- Open training programme (Enseñanza abierta):	Several, deepening in a particular field of knowledge	diploma (own title – non official, 12 ECTS)		2476	Fee: 281,23 (2008-09)	1, 2, 3, 4, 5, 6, 7, 8
a.2.2- Professional development programme	Several, related to Labor Market demands	Professional Expert diploma (own title – non official, from 20 ECTS) or Professional actualization diploma (12 – 19 ECTS)		3444	Fee: 300 – 1000 €	1, 2, 3, 4, 5, 6, 7, 8
a.3- Training programme in the area of Health	Several courses related to health	Master's, specialist, expert, professional expert, or professional actualization		2600	Depen-ding on the course	1, 2, 3, 6, 7, 8

b) CUID: language learning	Language learning	A1 to C1 depending on languages	2001	4776 (in 2007-08)	Fee: 295 €	1, 3, 4, 5, 6, 7
c) UNED Senior	Several	Diploma of participation	2008	467	Fee: 50 € per module	1, 3, 4, 6
d) University extension programme (extension universitaria)						
d.1- University extension programme courses	Several	Certificate of participation		No data available	Depending on courses	1, 2, 3, 4, 5, 6, 7, 8, 9
d.2- Summer courses (cursos de verano)	Several 159 courses and workshops in 2009	diploma (own title – non official) 1-2 ECTS	1989	No data available	Fee: 90 to 250 €, depending on courses	1, 2, 3, 6, 7, 8
e) Open Educational Resources OCW	Several	none	2007	No data available	0	3, 4, 5
f) Club de lectura	Literature	none	2006	No data available	0	1, 3, 4, 5, 6
g) "On demand courses", institutional courses	In 2007-08: 27 varied institutional courses developed on agreement with different entities			2500 aprox.	Depending on courses	1, 2, 6, 7, 8

Analysis of the LLL experiences at UNED

Formal, non-formal, informal character of the LLL programmes and activities

All the training activities provided by UNED are formal in some sense, according to the definition which is used at a European level[74], as they are "provided by education or training institutions, with structured learning objectives, learning time and learning support. It is intentional on the part of the learner and leads to certification".

If we consider the formal-non formal-informal character as a matter of degree, the different courses offered by UNED vary in a range within the "formal" label: from totally formal courses (regular certificates, undergraduate and postgraduate degrees) to less formal activities (short courses, summer courses, UNED Senior for people over 55 years old, even the Open Course Ware (OCW), which is intentional in its design but is not supported in its development and doesn't lead to certification). These less formal activities could also be interpreted as non-formal, considering that they don't lead to a regular/traditional certification but they are intentional in educational terms; but, if we follow the definition used at European level ("Non-formal learning is not provided by an education or training institution and typically does not lead to certification. However, it is intentional on the part of the learner and has structured objectives, times and support"), it is more accurate to keep talking about formal education.

According to the definitions provided in the cited lifelong learning policy website ("Informal learning results from daily activities related to work, family life or leisure. It is not structured and usually does not lead to certification. In most cases, it is unintentional on the part of the learner"), none of the activities that Universities provide with an intentional educational purpose are informal. Informal learning would be a collateral effect of the interaction settings that the institutions create with other purpose (a formal one).

Having in mind these considerations, the former examples provided regarding UNED are representative of what is being developed at this University, under a wide range of formal activities.

Only the cultural activities, such as the Reading club, can be considered under the frame of informal activities.

But the USBM project is working with the following definitions (USBM, 2010: 22):

- "Non-formal learning: structured periods of learning that may include formative assessment but which do not lead to the award of academic credit; examples include professional development courses which build professional competence;

- Informal learning: loosely structured periods of learning which rarely include assessment and which do not lead to the award of academic credit; examples include open educational resources developed and made available online by universities to anyone who wishes to study them."

74 Definitions of formal, non-formal and informal learning in the lifelong learning policy website, by the European Commission: **http://ec.europa.eu/education/lifelong-learning-policy/doc52_en.htm**

Then, we can state that UNED offers non formal learning through the UNED Senior programme, and informal learning through the OCW.

Success factors and obstacles in organizing LLL at UNED

Success can be measured and analyzed in different manners and from different perspectives. Business terms and language are also used in educational settings; while institutions devoted to education have things to learn from this business paradigm, specially in the organizational aspect and management issues, it is important to include other elements in the success analysis: fulfillment of a social demand, pedagogical and academic quality, contribution to the acquisition of valuable competences beyond technical ones, etc. are main issues in a public educational institution as UNED, which has a clear social purpose formulated as "the facilitation of the access to university teaching to any person able to follow higher education" (UNED, 2005). Lifelong learning is a frame that includes many kind of experiences, also those that, in a more or less formal structure, can be offered from universities. Considering the **success factors** in organizing LLL identified in the USBM project (Watkinson and Tinoca, 2010), the following are specially relevant in the UNED case. Some of them are included in table 2 regarding the continuing education programmes.

Content related:

- the topic of the course (currency, relevance to the field, novelty)
- the implication of the teachers / professors in the course
- the course is high quality and informed by the latest research
- the course fills a gap in the market
- the stakeholders collaborate in the production and/or delivery of the course

Pedagogical delivery:

- the provision of continuous feed-back to the students, especially the promptness of replies
- the quality and accessibility of the materials
- the provision of clear information from the beginning of the course
- the teaching is done at a time and place and through media which best suits the students
- the course is easily accessible

Organizational issues:

- there are no qualifications for entry
- fees are affordable
- the accreditation is valued
- the infrastructure is first class
- programmes are time and location independent (digital support; elearning – or combination via blended learning

On the other hand, some **obstacles** and difficulties can be highlighted. Among those reviewed in the USBM project (Watkinson and Tinoca, 2010: 9) regarding policy frameworks in the LLL arena, those which are more meaningful in the UNED case are:

- Lack of official accreditation/certification
- Wide competition from small and medium sized private providers
- Lack of recognition of elearning
- Inadequate infrastructure to support large number of distance education students
- Lack of alternative learning routes to progress in the acquisition of competences

Besides those, it is an obstacle in the case of UNED the lack (at the moment) of a specific political frame for LLL, on the national part, and the inflexibility in the delivery of new courses (bureaucratic requirements, rigid programmes regarding times and deadlines, etc.), on the institutional part.

General reflection about lifelong learning at UNED

The concern that this university has shown along its existence about LLL is unquestionable. At this moment, the LLL paradigm counts with the push of Europe, and in the educational field the concept of LLL is increasingly changing the perspectives about teaching and learning, with the logical but still incipient consequences in the design and delivery of a quality offer of LLL programmes and activities.

The brief overview of UNED, and framed in the EADTU-USBM project, leads to identify some of the challenges still facing this institution in the development of a LLL strategy:

- In the content part, best use of the professors' expertise within UNED.
- In the pedagogical delivery part, improvement in the use of technologies: exploitation of the possibilities that the virtual environments provide (interaction, assessment, …).
- In the organizational part, flexibility of the educational offer.

In this setting of public service and improvement commitment, distance education in an experimented institution such as UNED seems to be an interesting option for lifelong learning students in the Spanish context.

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Grodecka, Karolina & Kusiak, Jan & Marković, Jan: Openness in Higher Education. How to set institutional repository of OER (case of AGH-University of Science and Technology)

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Abstract

Authors explain the openness in the context of education and provide a short overview of the Polish projects aimed at Open Educational Resources development for formal and informal education. They focus on AGH-UST to be the first higher educational institution in Poland which launched institutional repository of OER – Open AGH. Authors describe a set of specific challenges that AGH has to face. Among others, the most important is a decision on appropriate Creative Commons license and choosing a tool for OER management. This paper should serve a starting point for sharing experiences, in establishing new OER repositories, especially between institutions from countries where there is little formal support for such initiatives.

1. Openness as innovation

According to OECD report "Giving Knowledge for Free" (2007), the term *openness* has become a keyword for the last decade. Mostly it has positive association with innovation, shifts and progress. Openness can be understand differently in different context. But each time its common sense is about reducing barriers and giving people free and unlimited access to information/services itself and its usage. Tuomi (2006) distinguishes three areas of openness: technology, social and resources. Authors of this paper agree to change the third dimension from resources to law which is, indeed, a key aspect of openness worldwide.

Openness in technology dimension can be provided through reducing limited access to content e.g. login and password requirements, access restriction only to a specific groups, etc. Such closed content is invisible for search engines, thus non-searchable too. Also using open, editable format for digital content, instead of closed, inaccessible, allows for wide access (also for disabled users) and interoperability.

Socially constrained openness is related to an institution or economic aspects. For instance law can limit access as can the prices of access (Tuomi, 2006). Social dimension is also linked with social awareness and understanding of benefits from openness.

The last constraint of openness is law. Currently authors' intellectual property rights are protected based on the old law system adequate to analogue works and culture. Those regulations are restrictive and provide more limitations than opportunities for sharing and re-using. Alternative law

system like Creative Commons licenses which allows an author for defining what user can do with his/her own work seems to be reasonable solution.
Based on above dimensions, it can be said that the idea of openness is built on the common agreement that every citizen should have right and freedom to use and adapt the knowledge which is understood as common property.

Open decade
Materu (2004) claims, that as the 1990s were called the e-decade, the present decade can be called the o-decade. We were witnesses of huge development of electronic services in education, business and commerce. Now new standards are being developed as open source, open systems, open archives, open content, etc.
The openness' implementation in a variety of fields, has also influenced on education, science and research. Diagnosis of educational trends for 2010 formulated by New Media Consortium in annual Horizon Report (2010), confirms that development of open education resources on wide scale takes not more that one year. Implementation of open approach to education is also an effect of a great progress in Web services. Last decade, called Web 2.0, make publication process very simple and feasible for almost everyone. Web 2.0 is the technology of participation. Wiki, blogs, social networking services allow for being active "online" user instead of passive recipients who can only search and see what others created. Next to the publication process, fast and easy communication and collaboration is feasible on more advanced level. In that sense, web 2.0 provides a great possibility for educators to work together with common agreement on open publication model. For example wiki can be very effective space for collaboration on open educational content.
Putting own work and sharing it with others, in fact is a matter of several click. However it also requires conscious decision and deep understanding the effect of making our work free to use for everybody.

2. Why OER are positive?

Web 2.0 has also change the way people learn and behave online. Because the publication process is very simple and everybody can become an author, low quality information and resources can be find on the Web. Today's learners, digital natives, use digital resources as basic source of information. The most popular web page in the Polish Internet is Wikipedia and Sciaga.pl where elaboration of school reading can be found (Lipszyc, 2010). In consequences learners do not read the literature. If situation won't change, the level of education further society are going to be low. For that reason, developing Open Educational Resources that can be used worldwide is a way to provide learning based on high quality resources and guarantee access to information, knowledge and experience exchange.

3. Open education in Poland

Open Educational Resources has been a global movement for about last decade. But there is still little awareness of open initiatives among Polish educators. As open source software is widely expected and used in the Polish higher education, the idea of sharing own work to others is rather new and revolutionary approach for academic faculty. In the Polish educational field there is common misunderstanding of openness, which usually meets with groundless argument that openness leads to abandon authors' intellectual property rights and profits. Coalition for Open Education, is a group responsible for shaping and promoting open education in Poland. It organises events like conferences and workshops where the idea of openness, OER and open education is explaining to educators. Currently it has seven institutions associated which launched several open educational projects. Worth mention here is **School Digital Library of Literature** (Szkolna Biblioteka Internetowa Wolne Lektury) with literature obligatory in Polish schools. The library has been developing since 2007 and give not-limited access to literature works that are in public domain (are not covered by intellectual property rights) and are recommended by Ministry of National Education. They are designed in several formats (html, odt, txt and pdf) and commented with information helpful for interpretation. They can be browsed for free, downloaded to a computer and shared with others under a Creative Commons Attribution license. The sister project of that is **Free Textbooks** with main objective here to develop open textbook in line with principles of open culture movement. This means that our common heritage – our knowledge – should be available and open freely for every citizen. Also there is several projects launched by Polish Wikimedia Foundation like as **Wikipedia, Wikibooks, Wikimedia Commons, Wikisources, Wikiquote, Wiktionary** each in the Polish language with content on Creative Commons BY SA. Those projects are also huge educational potential as the content can be used, share and remix creatively by teachers, learners and students.
There are also projects addressed to higher education and scientific institutions. **Open a book** is a digital collection of contemporary scientific books made available online with agreement from their authors. The aim of this project is to bring scientific literature close to the readers. It was launched by the Interdisciplinary Centre for Mathematical and Computational Modelling at Warsaw University, within the Creative Commons Poland and Polish Virtual Library of Science initiatives. **Institute of Biochemistry and Biophysics at Polish Science Academy** has also opened access to own scientific publications. To this initiatives that shapes open education in Poland has joined at the beginning of 2010, AGH University of Science and Technology with OpenCourseWare project - Open AGH.

4. Open AGH

AGH University of Science and Technology in Krakow is one of the best technical universities in Poland. Established in 1919, this year AGH has celebrated the 90th anniversary of existence. AGH is seen as one of more progressive institution on the Polish educational market, opened for new initiatives and responsive to social, technologies and pedagogical changes. Thus, to continue and sustain such positive image, AGH is the first Polish higher education institution to establish an OER repository. AGH has been a pioneer in a new context.

When launched (January 2010) Open AGH included 70 courses. After eight months that number has increased to 87 courses. Before the official start of Open AGH, some of academic teachers had placed their resources on their home pages or in AGH VLE Moodle, but they were copyright protected. After Open AGH was launched, some of staff agreed to transfer those resources into open repository and making them available on open rules. Additional, the works of AGH students created in the competition 'Notes on the Internet' were a good starting point for developing open institutional repository.

5. Building institutional repository of OER - key aspects

In this part of the paper authors focuses on key aspects that should be reflect on the stage of planning institutional repository of OER. The effectiveness of such project depends on several strategic decisions. Authors have divided them in the following categories:

5.1 Policy of openness

Decision about policy of openness is the most important decision in setting OER repository. Choosing right licences for OER is a key to a success. It requires deep understanding advantages and disadvantages of chosen approach.

Coalition for Open Education in Poland has develop openness gradation based on the Polish law regulation (2010). This is a short guide that allow for answering the question: how open my institution is/can be? The first level of openness is public domain (where works are not covered by intellectual property rights) and free licenses (Creative Commons BY and BY-SA) which means that the content can be re-use and adapt for any purpose. Second level is partly openness where Coalition located the rest of Creative Commons which are not fully open and put restriction for instance non-commercial use, not derivative works etc. The third level is open access which is content available online publicly but copyright protected. The last level is copyright protected content with closed access (e.g. located in database that requires login and password).

Above described gradation help institutions make conscious decision on "law" openness. It is also important here to understand the implication of chosen model. The most liberal approach (CC BY or CC BY-SA) guarantees maximum usage of OER without constraints. However if an institution chooses more conservative solution e.g. CC licence with "No Derivative Works" condition, it automatically blocks right e.g to translate. Similar "Non Commercial" condition reduces opportunity for wide distribution of OER to rural areas where there is no Internet connection (materials can not be recorded on DVD/CD-roms and sells even at the very low price).

Having all this pros and cons in mind, OER in Open AGH are available publicly under the terms of Attribution - Non Commercial - Share Alike Creative Commons license. The decision about choosing Creative Commons BY-NC-SA license was driven by academic staff attitude to opening educational materials. While in Poland there is an agreement that fully open educational resources is only those published on license CC BY and CC BY-SA, AGH has decided to prevent from commercial usage of Open AGH resources. This decision gives the

academic staff an assurance of not losing financial benefits. AGH authorities are convinced that with a chosen license, employees will be more willing to share their resources.

5.2. Model of repository

UNESCO OER Toolkit (2009) gives several examples how OER repository can be organised. First example, MIT OpenCourseWare, provides access to 2000 courses, containing syllabus, lectures, exercises, audio/video materials, test and references for further reading. All materials were created by MIT employees, and are ready to download and use on CC BY-NC-SA license. The second example, Open Learn (Open University UK), provides not only open courses but also opportunity to learn in open virtual learning environment. Open Learn gives students a choice to use only open content for self-learning or become an open students who can participate in students community, use tools offered within VLE, communicate and collaborate within students networked.

At AGH we decided to implement MIT model and currently we provide access to open courses and open materials for self-education with right to re-use and adapt for any, except commercial, purpose.

5.3 Type of resources

Decision about type of resources in OER repository and way of acquire them should definitely be written in our planning strategy. OpenCourseWare Consortium (OCWC) promotes OpenCourseWare which is understand us educational materials developed for educational purpose, while OER are defined as every material that can be used for learning. According to the policy of Open AGH, in repository can be published online courses as well as single documents – syllabuses, e-books, notes from lectures and video recording lectures, simulations, animations, podcasts, etc. The basic rule here is to place recourses that could supports academic teachers in teaching practice.

While choosing financial benefits for employees as a way of acquisition new resources is rather risky one (what if the budget for OER production ends?), direct reaching the potential authors and convincing them to share resources can be effective one. According to the results of survey on OER condition at University of Michigan presented in Hardin's paper (2010), if 30% of employees are engaged in OER development and creation, that can be seen as great success.

5.4 Technology

The basic question to be answered here is what tool can be used for repository platform to be easy manageable on the level of content and metadata. There are several option to be chosen. The question is: should it be dedicated software, open source or proprietary one? Due to the fact that from 2006 AGH staff has been developing their courses on Moodle, this CMS was chosen as basic system for managing OER. Such decision maximised the simplicity of the process of 'opening' resources for AGH academic staff.

Open AGH has separate installation (due to have unique webpage address) and specific configuration in order to allow for access without any limitation (even option login as a guest was deleted). However in future there are plans to transfer Open AGH database to some dedicated content management systems. After 8 months working, several problems were

identified. For instance with updating the content, with locating materials manually on separate Moodle installation in parallel to the installation on university institutes' servers, etc.
It is though that software only for metadata management would be good solution for AGH where the educational materials are distributed among different Moodle installations.

5.5 Target group

Target group can be understood in two ways. First of all we have to decide who can be an author of OER in our institutional repository. In majority the group is consist of the university employees who are academic teachers and create course materials for students. This is part of their vocational activity that could be transferred into OpenCourseWare. Another group that can make great input are students. Engaging students in developing institutional repository is rather innovative approach which requires additional support and supervision of professors. At AGH we have decided to give students a chance to become part of Open AGH. „Notes on the Internet" is a annual competition for AGH students, who prepare digital educational resources under the supervision of their professors. Best materials from earlier years are already in our repository. This year an amendment has been made to the rules of the contest and it is explicitly stated that all the submissions should be CC-licensed and will be made available on Open AGH. Also OpenCourseWare Consortium has launched new initiatives called Students for OCW (http://studentocw.ning.com/) in order to increase the awareness of OCW and promote its use. Students participate through evaluation the course materials, translations, promotion in their countries as well as collaborate and network with students from all over the world.
Before setting university repository of OER it is worth spending some time for carrying out a short survey on attitude to openness among our further authors in order to receive important knowledge on level of awareness. Based on the results we could plan particular steps and think on comprehensive strategy for OER creation like as internal workshops for employees, promotion, individual contact, etc. Similar research was conducted at University of Michigan (Hardin, 2010).

The target group is also consist of future recipients of OER. We have to decide who can have access to the repository and have right to re-using the materials. It is important decision here and we have to remember the basic principles of being open. Providing differentiation in access or giving more right to a particular group is far from best practice.

5.6 Support from authorities

Without the support of the authorities such innovative initiative like OER repository has little chance of success. Thus, one of our priority should focus on convincing a rector and deens about benefits of such project for the whole institution. Arguments worth remembering here are: prestige of university that makes its education process transparent, high quality of resources (we show what we have the best), lower costs of creating materials, increasing citation rate of employees, etc.
At AGH we have been fortunate that the authorities were interested in Open Educational Resources initiative. Their general attitude towards new ideas is positive. Some of them have

even had educational resources placed on the Internet though, it has been still copyrighted. Nevertheless, the idea of sharing results of one's own work for free was not strange to them. (Marković, Grodecka, 2010). This is very important to gain "green light" from the highest authorities.

5.7 Support from environment

Support from external institutions-experts in open education field is crucial at the very beginning. Experts can provide relevant support and find solutions for problems concerning technology, law and resources, as well as can disseminate knowledge of our new initiative.
In AGH case, one of such institution was OCWC, from whom we received not only helpful advice but also an invitation to join the consortium as soon as Open AGH was accessible to public. This assured AGH authorities that our efforts will not be left in void, but that we will be formally linked to an active, international organisation, which can provide us with further help (Marković, Grodecka, 2010). Also Coalition for Open Education in Poland gave us great support while choosing Creative Commons license for Open AGH resources. Effective strategy here can be also looking for the institutions in and outside our own country which have experience in the field and can provide us with valuable advice (Marković, Grodecka, 2010).

Conclusion

Launching OER repository requires thinking on variety of levels concerning technology, law and social attitude and awareness. Strategic decisions for OCW creation on planning stage are crucial for further effectiveness and success. However, success at the beginning won't be constant, if we do not plan further steps concerning development and acquisition of resources and new authors. Success of any OER initiatives depends on people who understand the idea of open education and want to share their work with others.

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Groner, Rudolf & Siegenthaler, Eva: Optimizing usability in open educational ressources – Challenges ahead

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Abstract

Authors of OERs typically know their software and contents almost too well, while most users lack this knowledge, and the authors frequently underestimate the users' misconceptions. The aim of a user-centered approach is to improve the usability of OERs for different users without deteriorating performance.

There is a potential for optimizing usability on several dimensions:

- Informational load,
- Interactivity between learner and OER,
- Optimizing for different subgroups of users,
- Enabling and encouraging interactions between different users.

In the visual display, there is often information overload, because designers tend to use all available space on the display for additional information (logos, banners, abvertisements, etc). Eye tracking is an excellent measure for investigating visual scanning behavior. However, its interpretation is ambiguous, in so far as the frequent and long inspection of a visual detail can be either the result of positive salience and attraction, or of a problem in cognitive processing. For disambiguating eye tracking data appropriately, we utilize the multifunctional analysis developed at the Swiss Distant University Usability Lab, combining eye tracking with mouse manipulation, verbal reports, logfiles, emotional reactions, questionnaires, interviews.

By comparing and clustering the protocols of several different users, we distinguish empirically between different user types. Consequently, by branching the users' paths, OERs are developed where parts are fitted to different subgroups of users, taking into account their special needs and skills.

1. Introduction

In the initial stage of the developmental process of an e-learning tool, there is a considerable gap between developer and future user: The author of an e-learning tool usually has a comprehensive knowledge of the structure of the software as well as of the details of the contents, but the user

lacks this knowledge, and the author usually underestimates the misconceptions which different users have about how to deal with a new tool. Usability analysis is an approach aimed at discovering the users' needs of a tool, recognizing the difficulties and optimizing the ease of handling. Typically some test persons, i.e. a sample of future users, representing their whole range, is observed and interviewed during the usage of the tool, and conclusions are drawn for its improvement. First of all, good usability is a goal pervasive through the entire process of system development (Groner, Raess and Sury, 2008). Checking the usability of a finished product is inadequate because it is more difficult or even impossible to reverse errors in design and implementation of a finished product. Therefore for an e-learning tool it is of central importance to continuously check and improve usability at different stages of the system development cycle (Figure 1).

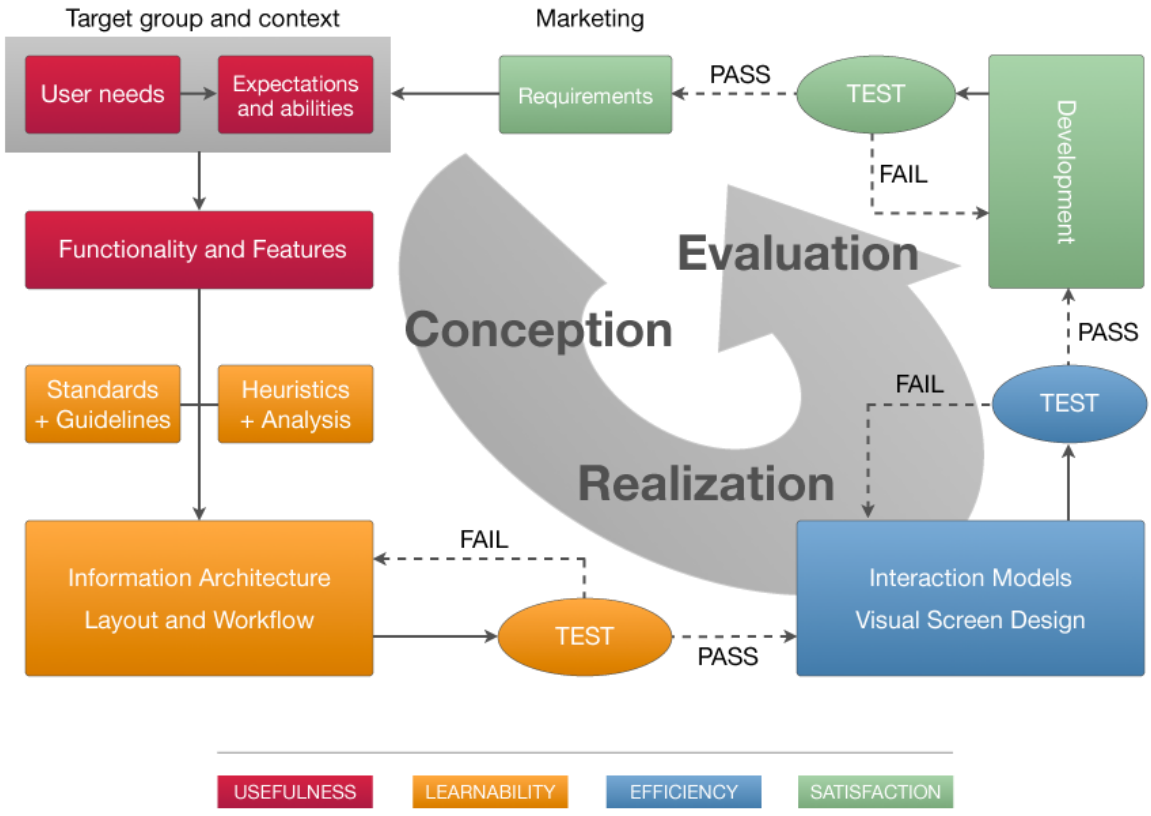

Figure 1: Usability test applied at three diffferent stages of system development (Groner, Raess & Sury, 2008)

Figure 2 shows the different stages of human information processing which should be taken into account in a multifunctional approach dealing with all aspects of the users' attentional (Groner & Groner, 2000; Bente, Eschenburg & Fürtjes, 2007) and cognitive capabilities (Groner & Groner, 1982).

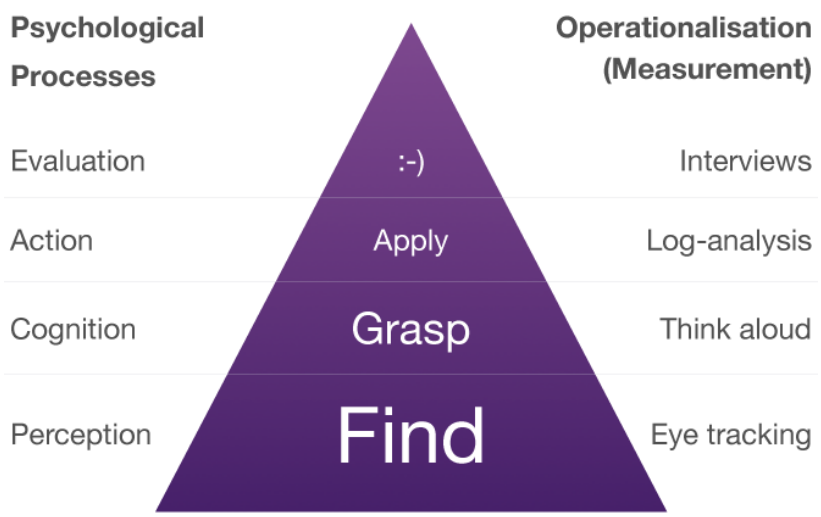

Figure 2: The pyramid of human information capabilities incorporated in the multifunctional usability analysis.

2. Illustrative example

To demonstrate the multifunctional approach we show how the different methods can be integrated in a case study. In the following sections we will illustrate the approach by an own pilot study in the field of e-learning. The main focus in the case study is concentrated on the learner's navigation and orientation in an e-learning module on the Moodle learning management system (Moodle CMS, 2009). A good navigation scheme in an e-learning module should allow users to find and access information effectively and efficiently, which can also have an effect on the learning process (Hohenstein & Wilbers, 2005).

As an illustrative example, we use data taken from an e-learning module „Leadership and Change Management" of the Department of Economy at Swiss Distant University of Applied Sciences. (Zuercher, 2008). The test persons are instructed to solve some defined tasks. In the following example the following instruction was given to to the user:

"As soon as you press a button, you'll find yourself in the module "Leadership and Change Management". Go to "Vorbereitungen Präsenzblock III" <English translation: Preparations for the students' meeting session number 3> and open the file "Miteinander reden" <talking with each other>. Finally, please log out "

With such a task we can investigate the user's orientation and navigation within the module. In the following sections we illustrate different analysis-examples of our multifunctional analysis

3. Methods

3.1 Eye tracking analysis

In our Usability Lab we do eye tracking with a Tobii X120 (Tobii Technology AB, 2009). With this eye tracker we have the possibility to track on a display or without display with real world objects. The Tobii eye tracker uses near infrared diodes to generate reflection patterns on the corneas of the user's eyes. Eye tracking generate different kinds of data. There are several possibilities to use those data. A meaningful analysis is dependent on the research question. In our pilot study, we are interested in the user orientation in an e-learning module, so we want to observe how the user interact and navigate on the Platform.

Figure 3: Heat map, fixation duration of 5 test persons green

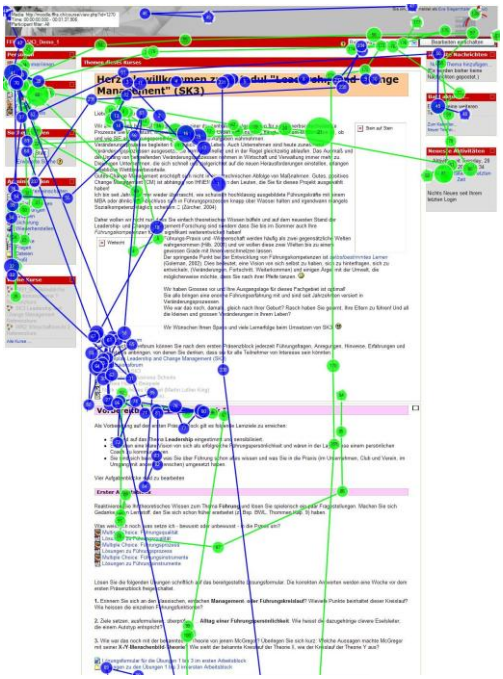

Figure 4: Gaze plot of two subjects (1: 2: blue)

A first possibility is to illustrate the allocation of attention over the total time spent on the display. This can be visualized in a heat map which shows the aggregated results of several users as color codes represented by hot and cold spots superimposed on the stimulus material. A heat map can be created based either on the fixation count or fixation duration. Figures 3 shows a heat map plot based on the absolute fixation duration, included are data from five subjects. It demonstrates that test persons look for a long time at the navigation board on the left and on the top right side.

Another possibility is to illustrate intra- and inter-individual differences in the sequential order of fixations. This can be illustrated in a gaze plot. Each fixation is illustrated with a dot where the radius

represents the length of the fixation. Figure 4 shows a gaze plot. Typically the first fixation starts in the centre of a page.

The two plots (heat map and gaze plot) are useful for the illustration of the data. For the interpretation and statistical analysis we define areas of interest (AOI). Without using AOI, we can only compare general measures of eye movements like fixation duration, saccade length, and time to first fixation, but we cannot localize the scan path.

Figure 5 shows the AOI selected in this case.

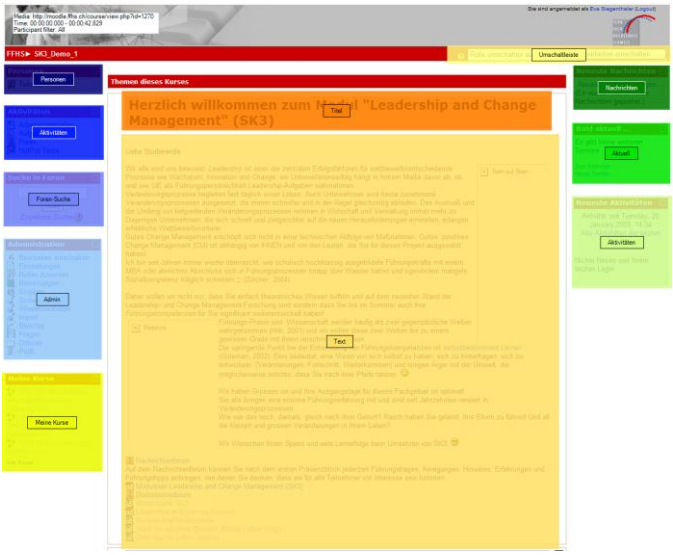

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Figure 5: Areas of interest. The blue boxes show the navigation tools on the left side of the display, the green boxes show navigation tools at the right side, the orange boxes show title and main text.

The AOI allow us to calculate the allocation of attention in relation to certain parts of the module. For example, we can calculate the frequency of fixations on the navigation board and can compare it with the frequency of fixation on the main text. With AOI we can also calculate intra- and inter-individual differences in frequencies, durations, chronology in relation to those pre-defined areas. In our pilot study we noticed that there is a high frequency of fixations of the navigation board at the begin of the experiment.

The advantage of eye tracking data is that they are physical; they are robust against social bias. But important is that eye tracking data cannot give a complete judgment about the usability of an e-learning module. Those data show the learners allocation of attention, but nothing about higher cognitive process like intention or strategy: “Eye tracking tells us what users look at, it does not tell us why” (Hyrskykari, Ovaska, Majaranta, Räihä & Lehtinen, 2008:1)

3.2 Verbal reports

A method to enhance eye movement data is the verbal report, also called think-aloud method (TA) (Nielsen, 1993; Van den Haak, De Jong & Schellens, 2003). It is a method, which offers a possibility to gain insight of a user's cognitive processes during the use of a module. There are two ways to record a TA: During the measurement (*concurrent think-aloud* (CTA), or after the measurement (*retrospective think-aloud* (RTA), (Hyrskykari et al. 2008). Table 1 shows a section of a CTA protocol as a part of the multifunctional test protocol. The advantage of RTA is that it does not affect other measurements or the normal behaviour. The advantage of CTA is that it can collect the remarks just in time, which sometimes are forgotten afterwards. Previous Research showed that CTA helps to find real usability problems (Ebling & John, 2000), but it can affect the primary process or delay it (Rhenius & Deffner, 1990). Studies which compared CTA and RTA, showed that RTA produces more verbal data and that the RTA data are more informative than the CTA data (Van den Haak et al., 2003, Hyrskykari et al. 2008).

In our approach we use both CTA and RTA. Parallel to the eye tracking we generate an audio file, which we transcribe afterwards. We give test persons the possibility to think-aloud while testing, but we do not force them. In some situations it is important that test persons say special insights aloud that help us to interpret other data. There are also inter-individual differences: Some test persons like thinking aloud and they are allowed to talk as much as they like, but for other test persons it is disturbing and they talk at a minimum. We use RTA as a supplementary method. After testing, we confront subjects with video material and ask them to recall their thoughts during the test. Missing information can be added in this way.

Table 1: Multifunctional test protocol

Time stamp (min:sec)	**Eye tracking areas of interest**	**Subjective observation (CTA think-aloud protocol)**	**Objective observation (log-file)**	**Retrospective think-aloud Reports (RTA)**
00:05	AOI(7), AOI(8)	(mute)	start page	"Tried to orient myself"
00:20	AOI(2), AOI(1), AOI(2), AOI(4), AOI(9), AOI(10)	"I cannot find the file, there is no link to the file"	„Veranstaltungen"-page: scrolls up and down (rescrolling)	"Many unnecessary informations"
00:30	AOI(15), AOI(17)	"I'll try it with the search tool"	opens the browser search tool and insert the file name	"Could not find it in the site"
01:10	AOI(17), AOI(15)	"Yes, here it is"	finds and opens the file	"Finally I found one"

3.3 Log-file analysis

The log-file analysis is an important element in our multifunctional concept. In contrast to the verbal report, it is an objective measurement. For each test person we can track the movement of the mouse and clicking behaviour. With those data we can quantify the efficacy of the user's behaviour. We count how many clicks a subject makes to complete an exercise and we count how many detours a subject makes and their length. We we can use those data for a qualitative analysis in combination with the verbal reports , and we also can analyze them with statistical methods. The fourth column in Table 1 shows a section of a transcribed log-file in the multifunctional test protocol. As an example, the log-file at time stamp 00:30:00 shows that the test person does not open the search tool of the e-learning module site, but rather opens the browser's search tool. *Why* the test person does not use the site search tool remains an open question, which cannot be answered from the log-file or the CTA alone. An obvious answer is, that the search tool of the e-learning module site doe not bind enough attentional ressources, either because its perceptual salience is too low, or because it is crammed by too many other competing pieces of information.

3.4 Retrospective interviews

With retrospective interviews we collect subjective data after testing. One part of the retrospective interviews are the RTA, another part are usability-questionnaires. Questions to be asked can be yes/no questions, open-ended questions, multiple-choice questions, etc. The most popular type of questions for usability evaluation is Likert type questions (Piyasirivej, 2008). Users are given a statement and asked to rate their agreement with the statement. In our study we used a five-point Likert scale from 1 (= strongly disagree) to 5 (= strongly agree) (as also did Ong, Lai & Wang, 2004). Standardised questionnaires are good as a guiding principle, but in usability research there is often a need for specific questions depending on the test site. Each web site has a specific topic, and questionnaires have to be tailored to the test material. Data from questionnaires give information about different subject items like emotion, satisfaction, acceptance, etc. Those data form an important framework around the other subjective and objective data.

3.5 Performance characteristics

Analogous to the log-file analysis we can measure objective performance characteristics. In the task used in the illustrative example, we measure the time necessary for solving the task and the efficacy of the scrolling behaviour, we count the number of failures or mistakes.

In many cases the e-learning tool also includes a final test for assessing the user's performance which might be used as a feedback for the user to go back to the relevant sections or to study

supplementary learning material. The performance on those tests can also be used as a criterion for evaluating different versions of the e-learning tool.

4. Addressing different subgroups of users

As a first step in the system development cycle it is important to define the population of users who are expected to work with the tool. Their level of background knowledge of the learning area as well as their media competence determine the learning material and its presentation in the tool. Therefore it is of great importance to select the test persons of the usability tests over the full range of individual differences for which the tool should be valid (gender, age, intelligence, media competence, knowledge level, etc). Since sample size is typically quite small in usability tests (Nielsen, 1993), the sample should still contain the extreme ends in the distribution of the relevant variables. Frequently it must be realized that it is very difficult to maintain a level of difficulty fitting all users equally, and not asking too much from some, and too little from others.

There are several ways of coping with this difficulty in the set-up of an e-learning tool which we will not cover in the present context. The important point in the usability analysis is a representative sample of test persons and the assessment of their specific characteristics which are relevant for the construction of the e-learning tool.

5. Conclusions

The multifunctional usability analysis employs different methods of measuring usability of an e-learning module. Every single method can describe processes in different areas of human information processing, but it is ambiguous with respect to the entire ongoing process. For a profound usability analysis it is important to combine these different data. Table 1 shows a multifunctional test protocol; where the data from the different methods are put together based on the time stamp. In our pilot study, the results showed that user have navigation problems in the Moodle e-learning module “Leadership and change management”. There is too much visual information presented on one page, and the users do not find the relevant pieces.

The following suggestions can be deduced from the multifunctional analysis of the illustrative example: The start page should contain less contents as separate pieces, but rather should include a *table of contents* with direct links. In the start page and in subsequent pages, there should a static navigation tool around the dynamic and scrollable content.

In the past years, usability research was dominated by qualitative studies. The proposed multifunctional analysis should make it possible to combine qualitative and quantitative data, within a comprehensive model of human action based on the basic functions of human information processing, as they have been suggested by cognitive psychology.

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Hediger, Andreas & Sadiki, Jetmire: Designing Model Courses for a Process of eLearning Optimization

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Abstract

The Swiss Distance University of Applied Sciences (FFHS) has set up the project *"Best Practice"*, initiating several processes of eLearning optimization. The objective of the project is to improve the didactic quality of courses, learning environment and study guidance, as well as to enhance student's online-activity, interactivity (Salmon, 2002) and self-regulation.

In a beacon project three courses have been designed as prototypes. Additionally a specific implementation tutorial will aid with the multiplication of these prototypes and to transfer results in to practice.

To reach the project's goals, we are aware that successful communication is an essential condition for support in virtual learning situations (Arnold, Kilian, Thillosen, & Zimmer, 2004). Consistent course design, adequate contacts with course instructors and active discussions have been proved to significantly influence the success of online courses (Swan et al., 2000). These didactic demands are met with a set of specifically designed devices like new course structure, presentation and visualization of study material and the information for lecturers and students. Further development will include an implementation policy and respective formation for multimedia use ("DICE", 2010), the publishing process and data visualization. We will show our monitoring process of the new didactic possibilities and how they can be helpful for students and lecturers.

1 Introduction

The Swiss Distance University of Applied Sciences has the vision of becoming an e-media university with high standards of co-operative and active learning. The process of eLearning optimization has a sound tradition at the organisation. An eLearning development-life-cycle was established four years ago, the "Reference Course Model", built to secure didactic quality and a sustainable workflow (cf. figure 3). It covered the organisational aspects quite well, but logfile analysis (i.e. statistics about

recorded online activities) showed too little online activity of students and process monitoring reported too little lecturers' feedback for development. A further optimization cycle was required.

Therefore the Swiss Distance University of Applied Sciences has set up the project *"Best Practice"* supporting lecturers to engage with a set of new methods and to train their respective skills. Having identified room for improvement, the FFHS assigned the Institute for Research in Open-, Distance- and eLearning (IFeL) with this project, focused on didactic design and work, interlaced though with technical infrastructure and corporate culture.

2 Theoretical background

At the Institute for Research in Open-, Distance- and eLearning (IFeL), we build on the concept of the Didactic Tetrahedron, which adds a forth point to the well-known didactic triangle – learner, teacher, content (Cohn & Terfurth, 1993, adapted to e-learning by Haugan & Hopmann, 2004). This added vertex – community – unfolds our framework of didactic correlations suitable for e-learning:

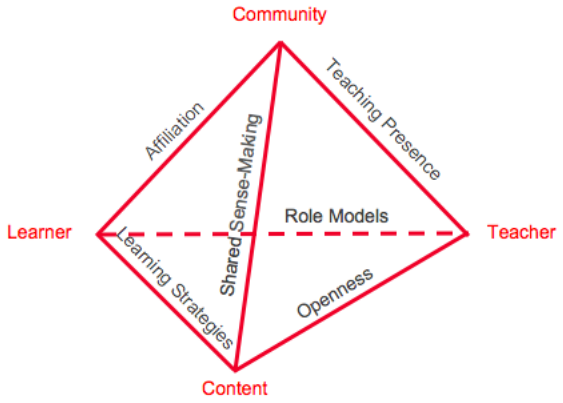


Figure 1: Didactic Tetrahedron (Bergamin & Brunner-Amacker, 2007, p. 27)

Based on the Didactic Tetrahedron we propose enhancements for the framework of didactic correlations. Renovation work is required to bring it to the state of the art. Starting with the ground walls of our web-based learning, the reference course (explained below), we focus on the didactic design of actual sequences. We build, of course, on an already established e-learning environment at the FFHS:

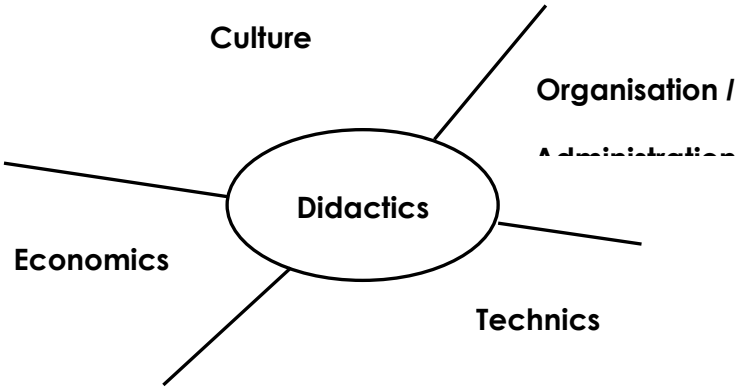


Figure 2: Elements of a sustainable e-learning implementation (Euler, 2004, p. 58)

Within this established environment, a production workflow for reference courses between administration, technique and didactic support is scheduled as follows:

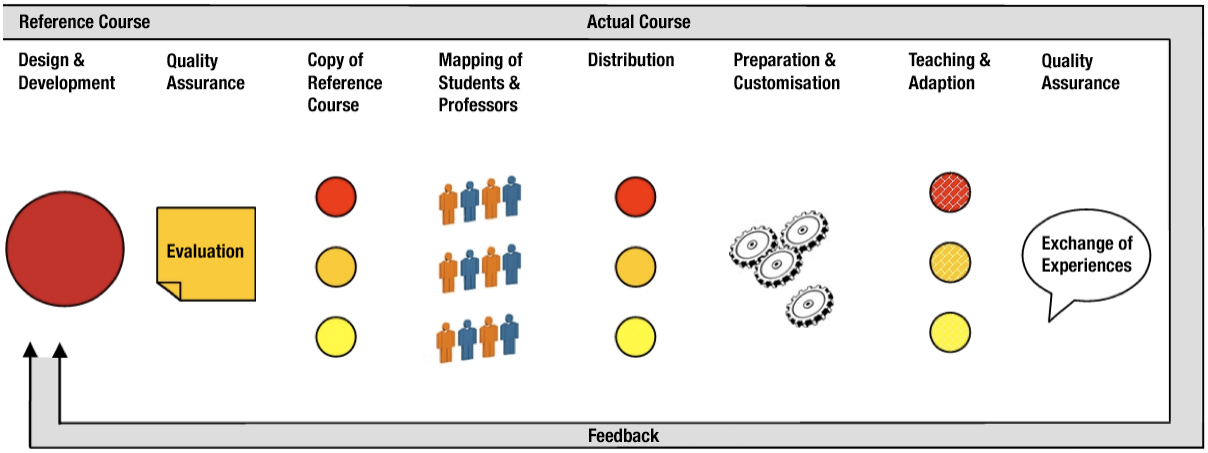


Figure 3: Sustainable workflow of development and implementation of eLearning material and activities (Bergamin & Brunner-Amacker, 2007, p. 28)

This workflow of development and distribution has been installed in order to improve the quality of online study material and the sustainability of the organisation's processes (Bergamin & Brunner-Amacker, 2007). Right from the start it was provided with a feedback control system for passing through the cycle again and again (cf. set of measures, ibid. p.29).

In daily routine the last link proved to be the weakest of the chain: exchange of experiences and feedback to developers. Future course design and development have therefore been underpinned by a combination of quality criteria, support for implementation and applied research.

3 Designing model courses

The actual project is a further step to enhance blended learning based on the existent reference courses, the teaching of experienced lecturers and the prototyping work by the specialised team of the IFeL. Design and performance of three reference courses have been developed and optimised in close co-operation of lecturers and project team.

The project works with a set of reasoned quality criteria and Best Practice courses as examples, therefore its name: *"Best Practice"* and it will result in an upgraded workflow: "Reference courses++". This upgraded development cycle will follow the new quality criteria and lecturers will be coached with a series of supporting measures.

4 Project Goals

The objective of the project is to improve the didactic quality of courses, learning environment and overall study guidance, to enhance student's online-activity, interactivity (Salmon, 2002) and self-regulation.

Another important aspect is successful communication, an essential condition for tutoring and supporting in virtual learning situations (Arnold et al., 2004). Online communication is affected by the condition that it is mostly written instead of spoken. That is also why the representation of immediacy transformed within the available channels is important for good online communication. Baringer & McCroskey (2000, p. 179) explain: "when teachers are immediate with their students, this behaviour results in numerous positive outcomes". In addition to this teacher behaviour, consistent course design, adequate contacts with course instructors and active discussions have been proved to significantly influence the success of online courses (Swan et al., 2000).

This matches the correlations in our Didactic Tetrahedron. We therefore encourage lecturers to communicate and give feedback regularly. One monitoring process demonstrated that if the lecturer is absent for more than a week, not providing feedback to forum discussions, assignments etc., students reduce or stop altogether their online activity in the course.

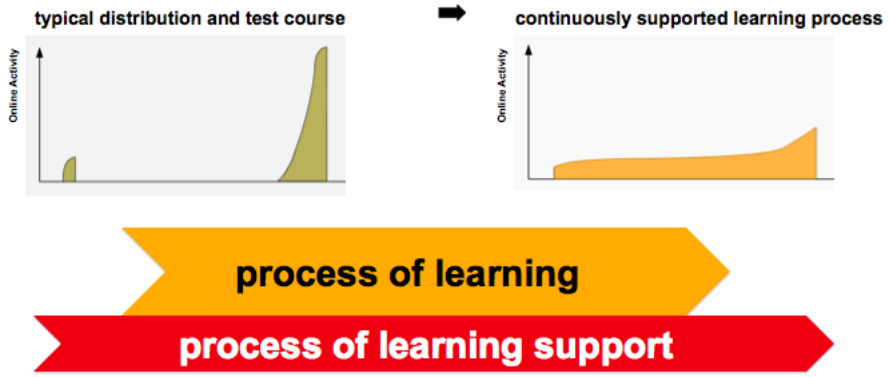


Figure 4: Process of learning and learning support

Basic didactic demands are answered with a set of specifically designed measures like new course structure, presentation and visualization of study material, assignments and the information for lecturers and students. We make interventions on three levels: observation, development of tools and measures concerning the workflow and actual term.

Logfiles have so far shown little activity in moodle courses except the download of files. With reference to three main functions of media in e-learning by distributing, by interacting and by collaboration according to Reinmann-Rothmeier (2003), we understand that the function of distributing has been covered well within the existing framework of reference courses, which is typical for an early cycle of development. One goal of the Best Practice project is to enhance courses' other two aspects, e-learning by interacting and by collaboration.

With regard to distribution, especially lecturers providing lots of material experienced problems in course design, e.g. papers becoming untraceable for students.

With regard to interaction and collaboration we suggest a set of micro communications, reinforcing the didactic design with selected interventions and interface enhancements. Unfortunately such fine-tuning is often misunderstood as mere decoration, whereas we claim that communication design is a core task of e-learning.

Our communication "channels" in a life environment are voiced language, gestures, movements, eye-contact, surrounding sounds and smells etc. in the e-world they are replaced with the typical online channels: writing and working in a browser window. The challenges of this are well known among web and interaction designers, but we often miss such competences in education, especially on the level of micro communication.

5 Quality Criteria

Based on the larger project goals and with a more heuristic approach we defined a set of more pointed quality criteria for the envisioned learning topology. A first set of criteria was defined following (Sonnberger, 2008). In the course of the project many criteria were further differentiated based on our findings.

We will apply various methods and see further projects to match these criteria. For drawing the footprint and specify the ground walls of actual blended learning these are the criteria in nine groups:

5.1 Learning Cycle

5.2 Study Guidance

5.3 Self-Regulated Learning

5.4 Interaction & Collaboration

5.5 Study Achievements

5.6 Evaluation

5.7 Synchronisation

5.8 Design & Usability

5.9 Organisation

In these following paragraphs, we first list the criteria in nine groups and then comment on some of them. "Course" and "module" are used equivalently.

5.1 Learning Cycle

- Modules are divided into units and every unit covers one theme. Units provide a well-defined outline of learning objectives, material and the schedule of in-class and web-based tasks.
- Every task (exercise, self assessment etc.) includes briefing, outcome and feedback, encouraging students to reflect on their learning practice and to adjust it for further learning cycles.

The “learning cycle criteria” open a perspective on the rhythm of learning, both for the study group and more openly the individual learner. Because on one hand we need a “set pace” for the study group and on the other hand we want distant learners to organise their learning both conceptually and according to their own schedule – within given margins.

Best practice units are thematically structured instead of sequenced according to: “preparation, face-to-face class, follow-up”. This allows students to work more like the outlined distant learner and a typical course to be divided into five instead of fifteen units. It demands a different planning routine of the individual learner, conceptually instead of sequentially.

Yet in one first best practice module students missed the sequenced order of units, common to the rest of their courses. On the telephone with the class’ speaker, we learned that their most important concern was to be informed about their precise tasks and material for a given week, including if anything new was published. Because most of the students work through various modules during a given term, they lack the time to search or browse through courses, let alone for further reading.

So they were concerned with keeping track and finding as precisely as possible scheduled tasks. To suit the request for a precise visual distinction, we redesigned the sub-headings for “preparation, face-to-face, recapitulation”. And we made a note of the importance of supportive and focused tutoring.

This can actively be reinforced with the specific lecturer’s channel (see below 5.2) and enhanced usability for writing feedback (additional functionality “turn-it-in”).

5.2 Study Guidance

- Learning objectives are specified for every unit. They meet the criteria: manageable, measurable, focused on the core idea and decisive for learning tasks.
- Tasks are worded precisely, comprehensibly and relating to specific study material and learning activities.
- Study material (in particular reading matter) is three-step tagged according to its relevance for the examination.
- Every module includes a general forum for questions and discussions among students and the lecturer’s channel to allow for an adequate rhythm of mentoring.

Learning objectives are decisive for transparent and engaging study guidance. They have to be comprehensible for every student and should yield potential for adaption as individual objective for every student. Teachers are to be encouraged to schedule this step of individualisation.

As for being comprehensible, learning objectives have all been written for existing modules and they need to be edited, not only for comprehensibility but also for relating to professional competence instead of topics and for consistency over consecutive modules.

It seems that the habitual and rather mechanical use of Bloom's taxonomy for specifying learning objectives is not so helpful for understanding them. From this derives the importance of a periodic overhaul from different methodical perspectives.

We will apply specific grids of competences for editing learning objectives to show their evolving progression. This guideline for the more detailed learning objectives follows the Common European Framework of Reference for Languages, whose reference levels are widely accepted as a standard for grading an individual's language proficiency – its learning objectives relating to competences not topics.

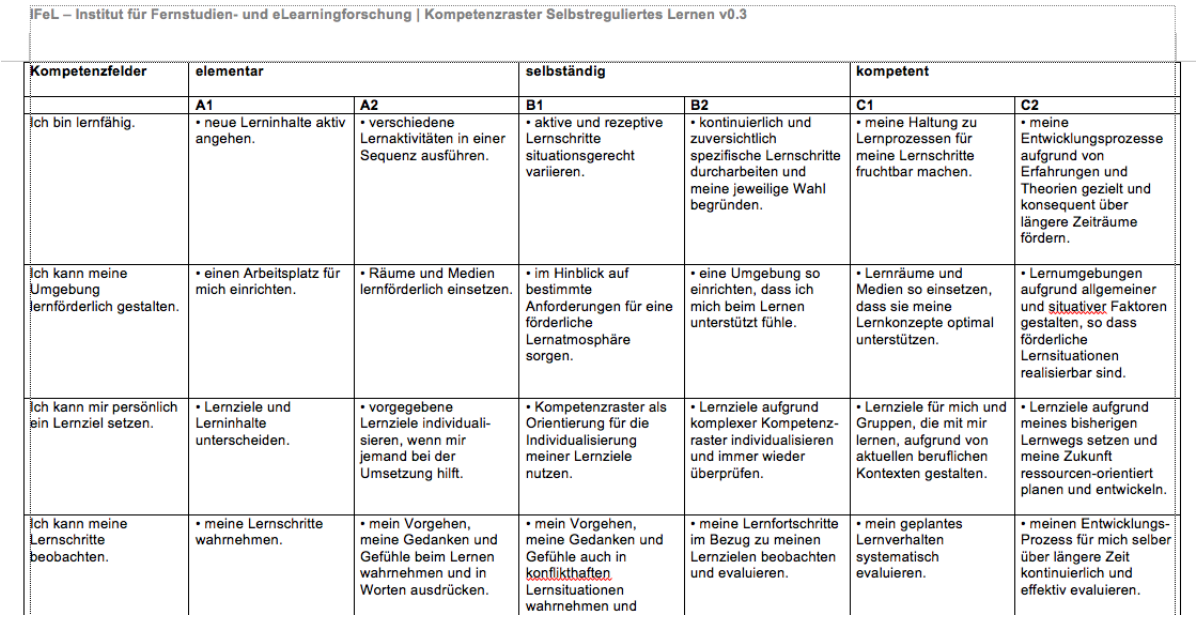
Here follows an example for a competence in spoken interaction on level B1: "I can enter unprepared into conversation on topics that are familiar, of personal interest or pertinent to everyday life (e.g. family, hobbies, work, travel and current events)."

Under this generally specified competence one will find as learning objective: "I can start, maintain and close simple face-to-face conversations on topics that are familiar or of personal interest."

And then individualised: "By the end of this month I will have started, maintained and closed a simple face-to-face conversation with my boss on communication costs and alternatives in our firm."

One may also find this individual objective: "By the end of this week I will have borrowed, examined and judged as relevant or not for my assignment five books from the library based on the bibliography. I will write at least three sentences about each book."

Which would relate to a more general competence: "I can look for and evaluate specific secondary sources."



IFeL – Institut für Fernstudien- und eLearningforschung | Kompetenzraster Selbstreguliertes Lernen v0.3

Kompetenzfelder	elementar		selbständig		kompetent	
	A1	A2	B1	B2	C1	C2
Ich bin lernfähig.	• neue Lerninhalte aktiv angehen.	• verschiedene Lernaktivitäten in einer Sequenz ausführen.	• aktive und rezeptive Lernschritte situationsgerecht variieren.	• kontinuierlich und zuversichtlich spezifische Lernschritte durcharbeiten und meine jeweilige Wahl begründen.	• meine Haltung zu Lernprozessen für meine Lernschritte fruchtbar machen.	• meine Entwicklungsprozesse aufgrund von Erfahrungen und Theorien gezielt und konsequent über längere Zeiträume fördern.
Ich kann meine Umgebung lernförderlich gestalten.	• einen Arbeitsplatz für mich einrichten.	• Räume und Medien lernförderlich einsetzen.	• im Hinblick auf bestimmte Anforderungen für eine förderliche Lernatmosphäre sorgen.	• eine Umgebung so einrichten, dass ich mich beim Lernen unterstützt fühle.	• Lernräume und Medien so einsetzen, dass sie meine Lernkonzepte optimal unterstützen.	• Lernumgebungen aufgrund allgemeiner und situativer Faktoren gestalten, so dass förderliche Lernsituationen realisierbar sind.
Ich kann mir persönlich ein Lernziel setzen.	• Lernziele und Lerninhalte unterscheiden.	• vorgegebene Lernziele individualisieren, wenn mir jemand bei der Umsetzung hilft.	• Kompetenzraster als Orientierung für die Individualisierung meiner Lernziele nutzen.	• Lernziele aufgrund komplexer Kompetenzraster individualisieren und immer wieder überprüfen.	• Lernziele für mich und Gruppen, die mit mir lernen, aufgrund von aktuellen beruflichen Kontexten gestalten.	• Lernziele aufgrund meines bisherigen Lernwegs setzen und meine Zukunft ressourcen-orientiert planen und entwickeln.
Ich kann meine Lernschritte beobachten.	• meine Lernschritte wahrnehmen.	• mein Vorgehen, meine Gedanken und Gefühle beim Lernen wahrnehmen und in Worten ausdrücken.	• mein Vorgehen, meine Gedanken und Gefühle auch in konflikthaften Lernsituationen wahrnehmen und	• meine Lernfortschritte im Bezug zu meinen Lernzielen beobachten und evaluieren.	• mein geplantes Lernverhalten systematisch evaluieren.	• meinen Entwicklungs-Prozess für mich selber über längere Zeit kontinuierlich und effektiv evaluieren.

Figure 5: Prototype of grid of competences

Another criterion of study guidance is the tagging of study literature covered on the exam. A student, provided with lots of study material, needs to know which books are relevant for the exam and which are indicated for further reading. For this purpose, we designed a "bibliography database", that can be sorted both according to relevance in three steps and of course alphabetically.

Figure 6: Bibliographic Database (in-house-development)

5.3 Self-Regulated Learning

- Students can actively participate in the design of the module and add to study material.
- Adequate self-control regarding exam-relevant knowledge is provided.
- Sufficient self-control regarding the learning process is provided.

- Students are encouraged to reflect on the achievement of their learning objectives.

The self-regulated-learning-criteria shall encourage self-regulated learning with suitable methods. Hence we are evaluating additional functionality like individual learning plan ("ULCC", 2010), e-portfolio and gps4learning ("GPS4Learning", 2010). In preparation is also the project MOCLog (Monitoring Online Courses with Logfiles), which allows monitoring of the personal condition in a module.

For a start with self-regulation and more specifically self-reflection we enabled user comments and allowed for uploads in most activities to increase the range of (self-) communication for a specific task.

5.4 Interaction & Collaboration

- Different collaborative learning activities are applied.
- Lecturers motivate and moderate collaborative tasks by suitable interventions and exercises.
- Topic relevant knowledge resources are collaboratively developed.

Interaction and collaboration are the two steps to go from a purely distributive learn-setting. Their optimal combination results in "best practice sequences". Yet without lecturers' active attendance in forums and other activities online communication will never lift off. Absence of guidance or poor communication will actually impede online cooperation, sending an unwanted message by depreciating interactions and re-enacting Watzlawick's dictum: One Cannot Not Communicate (Watzlawick, Beavin, & Jackson, 2007).

Following the work of Gilly Salmon (Salmon, 2002) we are encouraging lecturers to apply e-tivities that are

- Motivating, engaging and purposeful
- Based on interaction between students mainly through written message contributions
- Designed and led by an e-moderator
- Asynchronous (i.e. take place over time)
- Cheap and easy to run

5.5 Study Achievements

- Web-based course achievement is part of the overall grading.
- Sample exams including solutions are provided.
- Student's questions concerning sample exams are discussed and answered previous to the final exam.

Web-based assignments are graded according to a points-based system, published on the platform ahead of the start of term. Qualitative and quantitative grading and schedules are fully transparent at any time for students.

5.6 Evaluation

- Modules are evaluated during the term.

Best practice modules will be evaluated halfway through the actual term. Students will be asked to fill in an online feedback form that yields an immediate survey result to lecturers and students by means of a coded query (in-house development).

This is a short yet crucial criterion, the aim is to install a serious feedback cycle, to allow a more objective and immediate communication between lecturers and students.

Additionally, at the end of term, experts will rate all completed modules in order to locate and address further weak points.

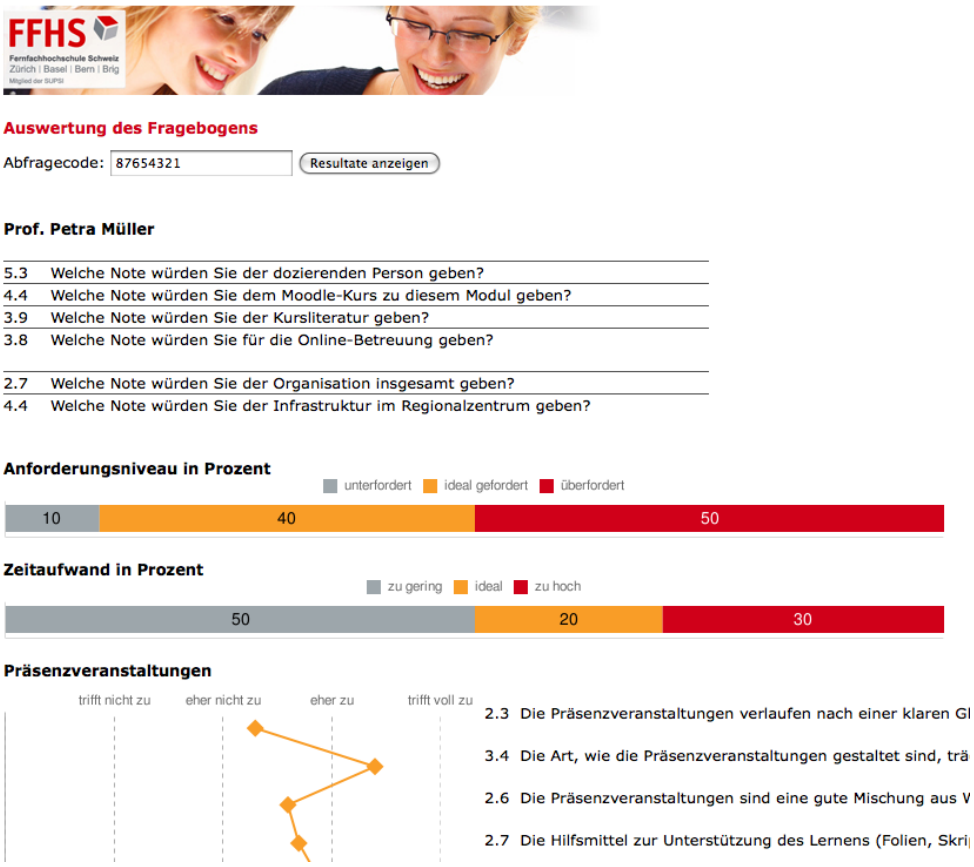


Figure 7: Visualisation of the survey results (in-house development)

5.7 Synchronisation

- Web-based course, in-class course and study material are phased.
- The information in the so called “Modulplan” is consistent to the web-based and in-class course.

Distant education at the FFHS has three components: web-based sequences, literature-based self-study and face-to-face classes. In order to phase these components and keep all students on track, lecturers have to publish precise and always consistent information and schedules, redundant through all media. Additionally all information must be consistent with the so called “Modulplan”, the official specification document of modules at the FFHS.

5.8 Design & Usability

- The organisation’s corporate design and the usability requirements are observed.
- Pictures and white space are used in order to reduce visual noise and to design a clear layout. The imagery style guidelines are observed.
- Readability and comprehensibility of tasks and materials comply with usability requirements.

Didactic design has a specific significance and major impact for distant education and e-learning. Beyond structuring the subject and schedule, it demands its own conceptual topology in terms of media usage and usability, learning methods, online socialisation and knowledge construction (Salmon, 2002). The media usability is often underestimated in education, yet it reaches far beyond the bells and whistles commonly associated with design.

Based on the corporate design of the FFHS the project tunes the details of interaction design. There are basic usability requirements to check according to the Web Accessibility Initiative (http://www.w3.org/TR/WCAG20/) and we define more specific aspects in our requirements, ranging from careful proofreading, consistent punctuation, tagging and citation to the use of heading-tags (h1, h2 etc.) for all units.

Short unit headings are a necessity for any functional navigation. Usability tests prove that students are looking for a navigation block to the left, hence we provide it there. With the upgrade to “moodle 2.0” we will further improve overall navigation on the site.

Another important concept is the reduction of visual noise. Readers are filtering relevant messages out of the potentially unlimited mass of information. Pictures and white space used reasonably have a strong visual impact providing ease and comfort for the reading eye. Our imagery style guidelines help to choose, format and set suitable pictures in an appropriate way: Pictures should trigger associations and add to the message instead of the décor.

5.9 Organisation

- Units are well structured and actively accompanied by lecturers, enabling to learn according to the student's heterogeneous previous knowledge
- The navigation gives a precise overview of the units and supports users based on a web-suitable information architecture.
- Reusability of learning material is secured by a data organisation as modular as possible: database, media library, data import from other systems etc.
- Sustainability is secured by letting lecturers co-develop and use a reference course.

The viewpoint of "organisation" helps to break things and actions into useful bits. Not only swift navigation through the course but also re-usability of learning material will benefit from a suitable partition into units and the additional media library environment.

The additional media library concentrates study material in database activities: well structured, sortable and searchable. It also allows for an easier re-use of any module, because only the main course units have to be copied, the library material – often lots of data – can be left as it is and connected as a meta-course to the one or many adapted copies of the main course, making lean courses with one larger data storage.

6 Project proceeding and monitoring

In this chapter we will show our monitoring process of the Best Practice project.

6.1 Collaboration of the IFeL project team and course developer

The project team started out with a close look at already existing material of the module (moodle course, official document "Modulplan", study literature etc.). Next step was a kick-off meeting with the Best Practice course developer. The goal of this meeting was to inform participants about the project's goals and criteria, the intended collaboration during development, as well as an agreement about first steps of their development work (defining sections' titles, describing learning objectives and so on).

After this kick-off meeting the project team continued to collect information and material that were important for course development. It set up an online-meeting room with Adobe Connect for discussing open questions with developers; this technology had the advantage of being able to share the screen and explain settings or templates directly. The team also met developers in presence, by Skype and telephone. Additionally a special forum for exchange with developers was set up. This forum helped to keep track of the questions and solutions during the course development.

Task sharing was mostly: the team's advice and tips about technical and methodical-didactical aspects, the developer's implementing of learning activities, documents and course structure. Developers have of course also been supported in detail with implementation.

6.2 Findings

Referring to the project goals we can – after the completion of one course of the beacon project – list the following first findings.

6.2.1 Didactic quality of courses

After this first run we have strong evidence that the additional online methods and activities have had a positive impact on students' immersion over time, in the students' perspective this wasn't felt so positively yet: They had to invest more time. On our way to more intrinsic motivation, we have to do more to convince students of the added value of a steadier and more balanced learning activity over time. Many students try to minimize their efforts and focus on exams. Our didactic ways have to answer this with a complex combination of guidelines, explanations and increasingly experience-based motivation.

6.2.2 Study guidance

For the pilot module the bibliography was published in the "media library environment" (see 5.9), separate from the main course module, where the access rate was lower. We will therefore further optimise the linking to the bibliography.

6.2.3 Online-activity and interactivity

The comparison of course logins, quiz, assignments and forum activities between the "old" and the "new" course showed a explicit improvement: the activities increased with a factor from 2 up to 14. This fact supports our idea of creating model courses for a process of eLearning optimization.

moodle activities	SK3-FS09	SK3-FS10	Comparison of activities 2009 –> 2010	
course view	939	2019		x 2.2
assignment view	19	198		x 10.4
quiz attempt	19	115		x 6
quiz close attempt	6	86	**increase factors 2 up to 14**	x 14.3
forum add discussion	4	52		x 13
forum add post	2	16		x 8
forum view discussion	64	580		x 9

Figure 8: Comparison of activities

6.2.4 Self-regulation

The monitoring of the communication in the online course is another important item. Our findings in this area show that the lecturer's activities in the course have a direct effect on student's activities. While the lecturer is not active in the course, the student also does not use the learning activities.

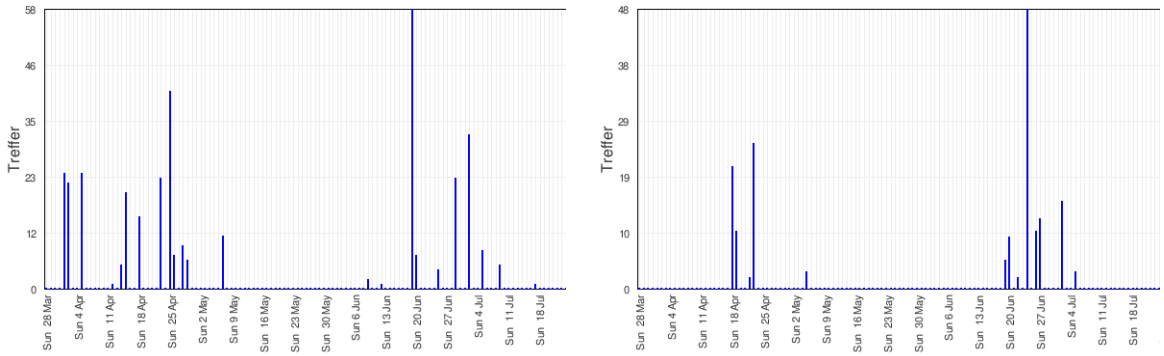


Figure 9: Pattern of online course to the left lecturer's activity profile, to the right student's activity profile, typically mirroring the lecturer's activities

7 Further Development

A main goal in the best practice process is to hold quality over quantity. This is especially important for further deployment over the whole of the organisation. Based on the three beacon courses, we intend to coach future "reference course developers" in parallel groups of five to ten in the specific tutorial course about best practice goals and methods. Such a developer group should experience a showcase best practice proceeding, intended to be mapped in terms of didactic design to their own development.

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Katzlinger, Elisabeth & Windischbauer, Ursula: Open up the University: Business Model for a "Whenever – Wherever" Multimedia Study Service

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Abstract

In accordance with the service agreement between the universities and the federal ministry, the universities have to offer special programmes, which address in particular working students. This offer focuses on all students who need flexibility concerning the time and space of learning, like working students, those who take care of somebody or persons rooted in their region. The Johannes Kepler University Linz (JKU) developed a concept for these students in order to integrate them into the scope of lifelong learning.

Therefore, a blended learning approach with elements from on campus courses and a multimedia distance-learning programme is established for bachelor studies in the fields of economics, business or social sciences. About two-thirds of the courses are covered by this programme, whereas courses from the specialisation fields or such courses that require high interaction take place as face-to-face courses. The services offered include the support of online-tutors as well as multimedia learning materials and are liable to costs: students have to pay per ECTS. In order to accommodate those students, who live in regions that are too far away from university and thus are not able to attend courses that take place at the university campus itself, the programme organises on-site face-to-face courses as well as exams in these regions. The regions themselves bear the additional costs for that and provide the necessary infrastructure, because they are interested in benefitting from highly educated residents. The programme started in the winter term 2009 and has an increasing number of participants. This concept represents the opening of our university for those students who would otherwise not be able to attend the courses and thus would be not able to finish a degree.

Introduction

Overview

At the Johannes Kepler University Linz there is an increasing number of students who have to take care of children or other persons (elderly people for example) and students with other social responsibilities. Moreover there are lots of students working either part time or fulltime besides studying.

In order to meet the demands of such students – like time and/or space flexibility - we developed a multimedia study concept to improve the situation for these students. The blended learning approach should thereby help to integrate more students into higher education.

The main purpose of the presented concept is to enable those students to study at a university by means of an e-learning programme mixed with face-to-face courses, which are partly held in those regions where the students live. Hence, persons living far away from the JKU and who are therefore not able to participate in on-campus courses or professionals who are inflexible concerning time should be attracted by this concept. Besides, more students should be integrated into an education at university level, because studies showed, that Austrian higher education lags behind other OECD countries regarding access, duration and graduation (OECD 2010).

Within the framework of lifelong learning, this programme addresses students who are studying at the Faculty of Social Sciences, Economics and Business (SoWi Faculty) and is called MUSSS (**Mu**ltimedia **S**tudies **S**ervice **S**OWI). It allows students to learn with the help of multimedia study elements and to decide by themselves about time and space of studying. Self directed learning plays an important factor in this concept.

Stakeholder/Participants

Different stakeholders take part in the study programme MUSSS. First of all of course the students play an import role in this concept. MUSSS especially wants to address those who want or need flexibility regarding time and space concerning their learning conditions. Due to the changes caused by the implementation of the Bologna Process the bachelor curricula in particular at the Faculty of Social Sciences, Economics and Business at the JKU provide a lot of courses with compulsory attendance. MUSSS therefore tries to minimize the compulsory attendance (and thus reduces expenditure of time, travel costs and organizational matters) by blended learning elements and courses held in different regions outside of Linz.

To realize our programme, lecturers, who had already taught the relevant subject before and who are willing to deal with new media (or who had already used blended learning elements) were needed. Those teachers hold the on campus courses as well as the MUSSS courses in order that consistency for the students is guaranteed. The lecturers are supported by specially trained tutors who take over duties like answering questions in the forum or correcting homework.

A project team, which is attached to the Department of Data Processing in Social Sciences, Economics and Business, operates organizational aspects like the coordination of the different courses etc, the control of the project itself is residing with the executive board of the university.

For those students who live far away from university MUSSS offers on-site courses and exams outside the campus, because the personal situation of some students, who want to participate in higher education at university level, does not allow them to reside in a university town. Thus the university “moves” to regional centres. The infrastructure for the courses is provided in cooperation with regional organisations like the chamber of commerce or the city council. These regional partners play another important factor in the whole project.

Multimedia Aspects of MUSSS

The concept of MUSSS enables students to organize their learning setting in a self-directed way. Therefore multimedia (hard- and software technology for the integration of digital media) is used to

provide content presented in different ways with variable media including a combination of audio, animation, video, and interactivity content forms along with traditional media, like books or lecture notes (Klimsa, 2002).

The range of subjects covers business sciences, social sciences, law, languages and informatics. The blended learning concept - including a media pool from which teachers can choose the appropriate media and concepts - allows adapting the learning offers according to the requirements of the individual fields.

For example, MUSSS provides a special wiki for students attending a data processing course. The students get a version of the wiki on an USB-Flash drive (along with a portable version of Firefox and Open Office) for offline- use, including videos and a text to speech version.

Besides, audio annotated sheets and video recorded lectures or podcasts are provided. For instance, in economics, students get audio annotated sheets along with numerous practice examples. Tutors in the forum answer questions raised by students.

Moreover, tutorials are held partly through web conference systems so that there is a direct exchange among students and between tutors and students, both in a visual and in an aural way. The acquisition of soft skills like giving a presentation, moderating an online discussion or debating about a certain topic happens in face-to-face meetings or with the aid of web conferencing tools.

Blended Learning

The programme MUSSS is based on a Blended Learning approach. This means that elements of multimedia distance learning and on-campus courses are mixed. Blended Learning means the combination of methods, techniques or resources and of applying them in an interactively meaningful learning environment (Reinmann-Rothmeier, 2003). It gives learners and teachers a potential environment to learn and teach more effectively.

The blended learning approach combines face-to-face instruction with computer-mediated instruction. Synchronous and asynchronous instructions are mixed. It also applies IT activities with the assistance of educational technologies using computer, cell phones, videoconferencing and other emerging electronic media. The asynchronous instruction gives the students the possibility for their own time management of learning hours.

Due to the collaboration of students and teachers, a new quality of teaching and learning is achieved. The ultimate aim of blended learning is to provide realistic practical opportunities for learners and teachers to make learning independent, useful and sustainable. The mixture of different learning environments leads to a new quality in teaching and learning.

In the concept of MUSSS two-thirds of the bachelor curriculum of business, economics and social sciences are offered as blended learning courses. One third of the courses are on campus courses, which are necessary to train social skills by means of discussions and presentations given by the students. Due to the subject-specific requirements, the online courses consist of up to one-third of face-to-face classes - especially in the field of language learning.

A framework of different learning technologies and teaching methods was developed for the MUSSS-Project. Within this framework teachers can choose freely which technologies or teaching methods they want to apply. The concept offers teachers a basic structure for the course and the learning units. The conceptual design of each subject takes the blended learning design into consideration and mixes the different ways of learning:

- Self-directed learning assigns the major responsibility for learning to the student. Within the framework provided by the goals and objectives of the subject, students should be able to determine their own learning goals, how to achieve their objectives best, how to select learning resources and how to measure their own progress (Krug, 2003).
- At the beginning of the first course so-called learning tandems are built, in order to help one another. Especially in courses, which are attended by a great number of part-time students, helping one another is very important for the success of each student and in order to decrease drop-out rates.
- Small group learning in heterogeneous groups is a valuable learning resource. The transfer of knowledge is enhanced by confronting students with problems that encourage them to not only learn content, but also to develop strategies to recognize the ‘analogy' or the ‘underlying principle' that can then be transferred to new problems and contexts. The group meets in face-to-face meetings or as a ‘virtual group’ supported with collaboration tools like web conferencing, audio conferences or chats.
- Face-to-face teaching for a reflection of the learning content. Faculty facilitate learning by asking questions, stimulating critical thinking, challenging the students' point of view, providing feedback, and evaluating student performance. During the process of gaining new knowledge, students are encouraged to think and to discover, rather than to simply memorize facts.

It depends on the subject-specific requirements of the learning content, how the different ways of learning are structured within the individual subjects. Thus the proportion of the different ways of learning differs from subject to subject: some subjects are bound to a larger degree of face-to-face teaching; other subjects only request self-directed learning.

The learners are accompanied by online tutors, who receive a special training beforehand and who support the whole process of learning. Providing tutorial help to online learners encourages them to be more active during their learning process, which in turn, can be expected to reduce the drop out rate (De Lievre et al, 2006). The service of the online tutors is part of the offer which is included in the costs for the learners.

Business Model

The concept of the business model is becoming increasingly popular with the emergence of e-commerce and other new economy businesses (Rasmussen, 2007). In general the term business model refers to the description of how an organization can create added value (Osterwalder et al.,

2009). The usage of the term in the literature is not consistent; the authors focus on different aspects of business activities.

Nowadays e-commerce and internet-based technologies have found their way into the education branch in the same way as they found their way into almost all other industries, too. Due to the rising demand for training, technology enhanced learning apparently is a growing market. Different theories and models for e-learning already exist to enable pedagogical and technological quality. However, there are hardly any theories or business models respectively that deal with the economic viability concerning marketability and sustainability of e-learning products. (Nagle et al, 2007).

Certain education institutions, such as for example many universities, have already started to apply e-learning; in order to cut costs (e.g. for classrooms or for teaching staff) on the one hand and in order to enhance the quality of teaching and of learning on the other hand. However, the measurement of its qualitative and quantitative effects is rather difficult. Mendling et al (2005) point out that investing into e-learning is a form of strategic investment made by the institutions in order to create competitive advantage concerning costs and effectiveness.

The most-cited recent article dealing with business models is written by Timmers (1998) and provides a classification scheme for business models for e-commerce. He defines a business model as “an architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues”.

Starting from this definition Wirtz (2001) recommends certain design components for a business model and describes six sub models: the procurement model, the capital model, the goods and services model, the market model, the distribution model and the service supply model. Internet-based business models were described as containing 4C’s, namely content, context, commerce and connection.

Chesbrough and Rosenbloom (2002) indicate "while the term ‘business model’ is often used these days, it is seldom defined explicitly." They specify six functions of a business model; these functions are to:

- articulate the value proposition
- identify a market segment
- define the structure of the firm’s value chain
- specify the revenue generation mechanisms
- describe the position of the firm within the value network
- formulate the competitive strategy

The e-commerce business models have to be adapted for e-learning business. Especially the core competences that an organisation needs to execute the business model (Osterwalder et al, 2003) are different in e-learning organisations. The underlying competences that e-learning organisation needs include are: customer relationship management, technology and pedagogical methodology. (Nagle et al, 2007). The analysis from Nagle et al (2007) showed “that for an e-learning business model to be successful it is a necessity that they are proficient in each of the three underlying competences.”

Value Proposition

The value proposition gives a description of the customer problem, the product that addresses the problem, and the value of the product from the customer's perspective. It describes how value items, such as either products or services or complementary value-added services, are bundled and then offered to meet the needs of the customers (Osterwalder et al, 2003).

Higher education institutions provide particular value propositions to their students, their faculty and administration, their institutional sponsors and the purchasers on the academic labour market. This paper describes the value proposition of the programme MUSSS for the students.

The programme offers a mixture of online and face-to-face classes for the bachelor studies in economics, business and social sciences and covers about two-third of the bachelor. The face-to-face classes partly take place on the campus of the JKU and partly at “university centres”, which are organised in cooperation with regional organisations.

This programme offers the students flexibility in their learning organization. Most of the programme allows a learning anytime and anywhere. It is designed especially for professionals and students who have to fulfil duties such as taking care of children, elderly people or persons with special needs.

The programme intends to attract such persons to higher education who have no possibility to attend on-campus programmes like students who are bound to a certain region and therefore are not able to live in the city of the university and for whom daily commuting would be too far. For this group of students face-to-face courses and exams are offered in two regional centres.

E-learning is expected to make a radical difference to education, specifically, the quality and effectiveness of the learning experience, a personalized learning is possible. New learning settings and scenarios are offered to the students. Computer mediated communication and instruction allows cooperative learning.

The primary benefit for end-users revolves around the ease of learning. This benefit is realised in expert course construction allowing course material to be taught in a highly effective manner. Accessibility features for disabled learners are also a big benefit as well as the ability to load courseware onto different modes of learning. Besides the learning of the teaching contents the students develop competences in ICT and media skills for their everyday and professional live.

Another important factor is the service, which is offered to the students by the project. Students are supported throughout their courses. During an introductory session (which takes place on Saturdays in order that professionals can attend the information event as well) all relevant course material – like USB-sticks with software, books, scripts, information sheets etc. – is given to the students. Besides, the programme coordinates the examination dates of the different subjects, in order to prevent scheduling conflicts of the various exams - unlike in on-campus courses where the dates of examination are normally not coordinated across all subjects so that sometimes several exams take place at the same time. And also the different modules of the curriculum are coordinated with each other. This means, that MUSSS offers a concrete schedule to the students, containing information when (in which part of the semester) to attend which courses.

Moreover students are supported by tutors, who offer help regarding the learning content as well as regarding organizational matters. Support is also provided by the MUSSS project team.

Students benefit from the use of different media and the didactical adaption of the course content since it enables them to decide where, when and how to learn.

Additional value is gained for students by practicing with the help of examination questions, which are provided through the learning management system Moodle, used by the JKU – thus the learners are able to test their knowledge.

MUSSS also offers summer courses; on the one hand to help regular students to accelerate their study progress and on the other hand to allow part time MUSSS attendees using the summer holidays to complete courses and thus to "catch up" and reduce their duration of study.

Market segment

The market segment describes the target group of a product or service. The customers are segmented in groups because they have different needs. Nagle et al. (2007) class the customers of e-learning organisations into two types: the corporate customer, and the end-user. The corporate customer is mainly represented by the senior management whose range of duties include the detection of e-learning requirements on the one hand, and authorising the procuration of the appropriate products on the other hand, whereas the end-user is the customer who actually learns.

The benefits created by the e-learning organisations accumulate to the corporate customer; it allows cost efficiency of using e-learning especially to manage their resources more effectively. Resources that are allocated by a large group of students e.g. lecture halls can be used more effectively.

The market segment of the end-user allows integrating more students into the scope of life-long learning. Students who are not able to take part in the regular programme of the university can study with the programme MUSSS. Most of the students are older than the regular students. 70 % of the students in the pilot phase work full or half time.

Another market segment is opened with the programme in regional centres. In two centres the students can attend the face-to-face classes and take the exams. The centres are about 100 km away from the university.

Value chain structure

The value chain structure defines the position of a firm and its activities in the value chain. Besides, it demonstrates in which way the company will create and distribute the offer in the chain (Chesbrough, Rosenbloom 2002).

Referring to the value chain of an educational institution - which of course does not produce goods like a firm in a certain industrial sector – knowledge can be regarded as one of its values (here seen as: created by research and passed on to students). As a public institution it naturally has to deal with other areas of activities and a broad range of duties under public law and thus has to meet other requirements than a private firm. Hence the position of a university clearly differs from that of a company operating on the private sector.

Especially the teaching staff is responsible for creating such a value which is then passed on to their students. Their ideas, research and knowledge as well as its didactic preparation are a key factor in this process.

MUSSS (and in particular MUSSS Open Content) aims at developing content in multiple ways. This is an important factor in the MUSSS programme. The content also covers exercises, multiple choice questions, videos, podcasts, etc.

This content should be reusable in the following semesters. The reusability of the subject matter is a crucial point regarding the creation of content by the lecturers and is therefore an important activity concerning the value chain.

In order to make the preparation of the content easier for them, teachers can choose different ways of creating the content – for this purpose a "Mediapool" is provided.

Lecturers themselves gain further competence in ICT and media skills as well as students, who learn for example how to deal with problems that might occur while holding a web conference session.

The content is distributed either online (via Moodle, email, blog, wiki etc.) or offline (either during the introductory session (e.g. on USB-sticks) or it is sent by mail).

Revenue generation and margins

The revenue generation and margins describe how revenue is generated (sales, transaction fees, subscription, support, advertising etc.), the cost structure, and target profit margins. (Turban, 2010).

Costing studies for higher education usually show that digital technologies cost more than traditional methods. Laurillard (2007) gives an overview of costing parameters in studies of technology-enhanced learning and shows that the costing parameters are selected for different reasons depending on the purpose of the study. The history of educational innovation shows methodological problems in evaluating comparative benefits of different teaching methods.

In the business model of MUSSS not all cost parameters can be identified, therefore the additional costs of the technology-enhanced learning are accounted. The additional service is brought to the learners by online-tutors. The main focus of their tasks depends on the tutors' roles within and integration into the organizational structure. They play the role of an intermediary between students and lecturers. They relieve the teachers from the organizational work and they are the first stop at the help desk.

Müller (2005) points out that the cost-efficient development and production of high-quality learning contents are crucial factors of success for e-learning offers to be economically sensible. For traditional teaching the costs are calculated by the remuneration of the lecturer based on the hours in class. This calculation is not possible for e-learning because the hours in class are limited. Therefore the model uses the definition of the workload of the teachers for the calculation like the ETCS for the students to define the workload for a course.

The revenue model describes how an organization will generate revenue. The university is publicly funded, only the additional expense for e-learning is part of the revenue model. The programme works with different revenue models:

- Utility model: The utility or "on-demand" model is based on metering usage, or a "pay as you go" approach. The students pay for additional service, especially the support of online-tutors and the lecturer. Additional content is available for the learners in MUSSS like commented slides and videos or additional questions for preparing to the examination. Add ons like USB-

sticks with the learning content or books and lecture notes are included in the fee. Fees are calculated per ECTS.

- Community model: The community model tries to gain network effects. With the MUSSS Open Content format e-learning is brought to a high number of students, not only to members of the primary target group of MUSSS but also to students attending the regular programme.
- Subscription model: Learners are charged a periodic fee to subscribe to a certain course. For the period of half a semester or a whole semester the learner has access to the course content. He or she is free to choose an examination date within this period or chooses it later.

Position in value network

The position in the value network can be made out by identifying business rivals, complementors and network effects that can be used to bring supplementary value to the customer (Chesbrough, Rosenbloom 2002).

Generally speaking, currently the JKU is cooperating with another postsecondary educational institution, the Fernuniversität Hagen in Germany. Students, who take part in MUSSS courses, are allowed to attend such e-learning courses (especially in the second part of studies) of the Fernuniversität Hagen that are not offered in Linz.

So far no direct competitors, who offer studies at a university level in regional centres, too, could be identified – there is another distance learning programme run by the JKU (Multimedia Study Program – Diploma Degree in Law) at the Faculty of Law – but as it is run by another faculty there is no overlapping of any kind.

Network effects are expected in respect of an increased publicity of the Bachelor's Degree in Economics and Business in particular and of the JKU in general.

Due to the regionalisation (in cooperation with regional partners providing infrastructure etc.) and in the scope of lifelong learning, all those who are interested but live too far away from Linz should be enabled to study at a postsecondary educational institution. Besides, alumni should be bound further to the university. Moreover, side effects, for example in terms of projects with regional companies are expected. Overall the region itself profits from well-educated residents, who are able and willing to stay in their region.

Competitive strategy

The competitive strategy describes, in which way the firm attempts to generate a lasting competitive advantage, for instance, with the help of differentiation, or niche strategy (Chesbrough, Rosenbloom 2002).

The openness of educational resources corresponds perfectly to the university's mission concerning an open admission to higher education and thus might contribute to the enrollment of a higher number of members of such groups who would otherwise possibly not attend university (Westera, 2008). The MUSSS Open Content becomes a strategically important activity for the programme.

People in rural areas have fewer possibilities to participate in higher education. To reach this target group the programme set activities in regional centres. These regions typically are too far away from university. The infrastructure needed for lectures is provided in cooperation with regional organisations like the municipality or the chamber of commerce. The regional centres are highly interested in offering higher education in the region. The standards of education are important for the sustainable development of a region. Moreover the region itself benefits from well-educated people, who are working in their region and are also staying there.

Conclusion and future prospects

The paper at hand describes a business model for a multimedia study service at university as well as the different stakeholders involved. Thereby different activities at a postsecondary educational institution take place within the framework of a blended learning programme. The multimedia concept mixes both, face-to-face classes (on campus or in certain regions to where the lecturers travel and where regional partners provide the necessary infrastructure) and online learning sessions by use of blended learning elements.

Regarding the project MUSSS, students benefit from an environment, which allows a flexible and self-directed learning and is an advantage especially for those students, who have either social responsibilities to fulfil or who are working besides studying.

The university itself profits in particular from the relief of resources concerning the shortage of rooms or infrastructure (parking space for example).

Moreover the university can concentrate the teaching resources to small group courses that need intensive support of the students, like seminars.

Especially for the bachelor studies the JKU develops to a dual mode university where e-learning and traditional classroom teaching is mixed in a didactically meaningful way. Students should be able to choose between e-learning offers and face-to-face classes to schedule their courses in a way that optimally suits their personal living condition.

As far as the future is concerned, MUSSS thinks about expanding this blended learning approach, for instance by offering a continuing education programme (e.g. for alumni) in the scope of lifelong learning and a target-group-specific educational programme.

Another important factor is the university’s role as a certificate authority. This implies potential new business fields for the universities within the range of e-learning in the future.

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Krämer, Bernd J. & Kiebl, Michael: Open Educational Resources and the Repository Network edu-sharing

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Abstract

Education providers increasingly integrate digital learning media into their education processes and thereby recognize the advantages of a sharing and reuse culture. But too many educational resources are still buried in closed content management systems, in local databases or on individual or institutional websites and are often not sustainably maintained. The Open Educational Resource (OER) movement aims to overcome such barriers. It has adopted a rather broad definition of OER including open courseware and content, software tools, and learning object repositories.

This article introduces edu-sharing, a portal to a network of repositories for educational resource management and a range of tools supporting development, discovery, adaptation, use, and delivery of content and learning arrangements. We argue that edu-sharing provides a comprehensive and suitable infrastructure to support the open education movement, but also communities of practice that cannot freely publish their educational assets, e.g., due to license constraints or other regulatory barriers.

The CampusContent Project

The repository network and portal edu-sharing is an outcome of the four-year research and development project, CampusContent (2009). The project has been funded between March 2005 and July 2009 by the Deutsche Forschungsgemeinschaft (DFG[75]). It set out to conduct trans-disciplinary research in a team of computer science and pedagogy experts to:

a) Find answers to the following key research questions:

- How can the visibility and sustainability of digital learning resources be improved?
- How can a sharing and reuse culture for high quality content and pedagogical best practices be promoted and technically enabled across heterogeneous development and delivery systems?
- How can best pedagogical practices be smoothly conveyed to practitioners, including lecturers, course developers, teacher or tutors?

[75] DFG, the German Research Foundation, funded the CampusContent Project under code number 44200719.

- How can educational resources be designed and adapted to accommodate different application contexts?

b) Support sharing, joint development and reuse of educational resources and pedagogical best practices, both through methodological and technical contributions.

The CampusContent Project was strongly inspired by design principles for component software including cohesion, de-coupling, parameterization, and late composition. If these ideas could be carried over to digital learning resources, there was a good chance that the success of component software would come here, too. The project was also a response to our frustration with the little impact that national funding programs promoting New Media in higher education had on daily practice. We observed that although a plethora of free educational resources exists, suitable candidate content is difficult to find and to access because it is hidden on institutional or individual websites, buried in closed content management systems or in local learning management systems or because it lacks meaningful metadata. Even if a promising resource is discovered, important context information, such as the pedagogical context for which it was designed, ownership rights and rights of use, is not documented and thus are likely to prevent its proper reuse. In addition, the access to online resources and their rendering are not standardized.

The Portal and Repository Network edu-sharing

As an academic project, CampusContent aimed at higher education initially and was inspired by our experiences with technology-enhanced distance education. In the course of the project, however, other educational institutions like schools and vocational education providers aspired to integrate the methods and technology developed in CampusContent in their e-learning processes. Especially local and regional school networks that are committed to technology-enhanced learning at different types and ages of schooling raised a strong demand for content sharing technology. Due to the heterogeneous landscape of learning technology there was a need to accommodate a range of learning management systems and authoring tools. To take this wider use of project outcomes into account, the project launched the product version of its repository network under the name "*edu-sharing*" in August 2009.

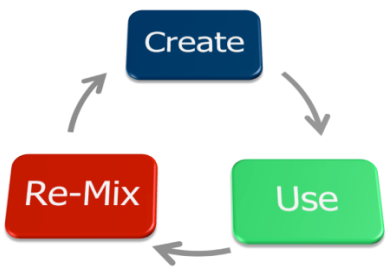

Fig. 1: Circle of educational knowledge building and sharing (cf., Brown and Adler, 2008)

The vision behind edu-sharing was to initiate and foster a circle of educational knowledge building and sharing (Fig. 1) by:

- Supporting the development of reusable and sharable learning content and didactic scenarios, which represent codified pedagogical knowledge (create).
- Encouraging teachers and lecturers to discover, review, critique and build on others' work (use).
- Enabling teachers and lecturers to integrate others' work into their own teaching (re-mix).

Currently nine didactic scenarios, which have been documented comprehensively in pedagogy- and methodology-oriented literature, are available in edu-sharing as scenario templates (cf. e.g. Krämer et al., 2010). Such templates describe learning arrangements in abstract form, i.e., without reference to topical content and specific implementations of communication and collaboration tools (in German, mostly). This predefined scenario templates include: strategic problem solving, puzzle method, simulation, problem-oriented learning, project method, or case study. 31 templates for didactic interaction supplement the scenario templates. They include: advocatus diaboli, active structuring, flash light brainstorming and others.

To content authors and instructional designers, edu-sharing offers design methodologies, a range of authoring tools connected to the repository network (see Fig. 2), a search engine to discover content and scenario templates in the repository network, and a personal workspace and a community portal for cooperative development.

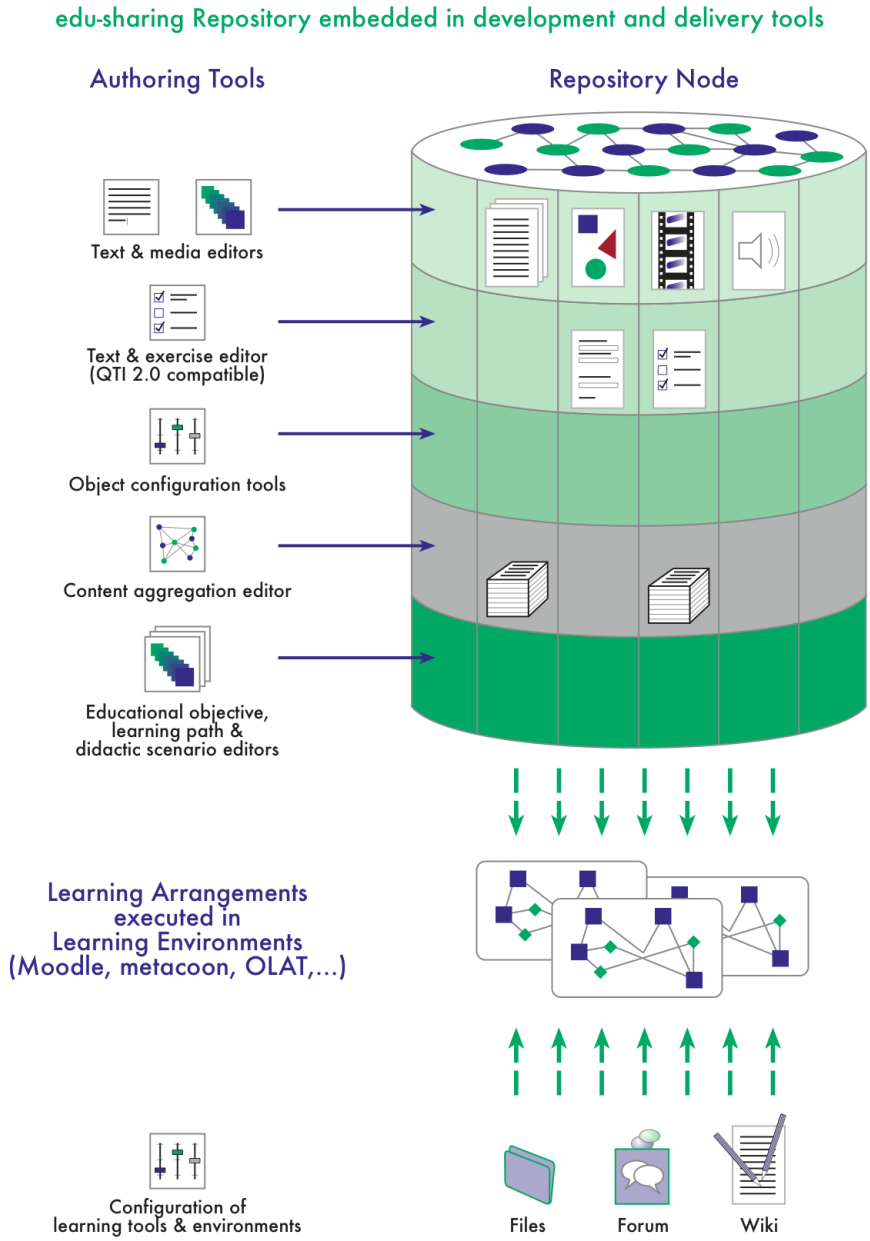

Fig. 2: An edu-sharing repository with attached end-user tools

Teachers and lecturers will primarily use their preferred learning management system (LMS) and the search engine to design executable courseware. A speciality of the LMSes integrated in edu-sharing[76] is that they allow the search for content and scenarios from within the LMS. Suitable content can then be referenced in a course and appropriate scenarios can be imported and completed.

[76] Currently Moodle and metacoon are integrated, OLAT is under development and the integration of Fronter is planned.

Students typically use their school's LMS. If this LMS is an integral part of edu-sharing, they may discover further valuable learning resources, such as open content and open courseware, in the repository network or in attached content pools with the help of the search engine.

In the following subsections we present further details of the edu-sharing technology and its key features.

Technology

The core technology developed in CampusContent is a distributed educational resource repository that is organized as a network of homogeneous repositories (cf. Fig. 3). Each edu-sharing node (see Fig. 2) is typically operated autonomously by a separate institution. This institution can decide whether it wants to run its edu-sharing repository as an isolated system or connect it with other repositories in the edu-sharing family. In the latter case the users can access content and didactic scenarios, from non-local repositories. They can also form cross-institutional communities of practice (like C_1 in Fig. 3), and give external users access to all open and selected closed resources.

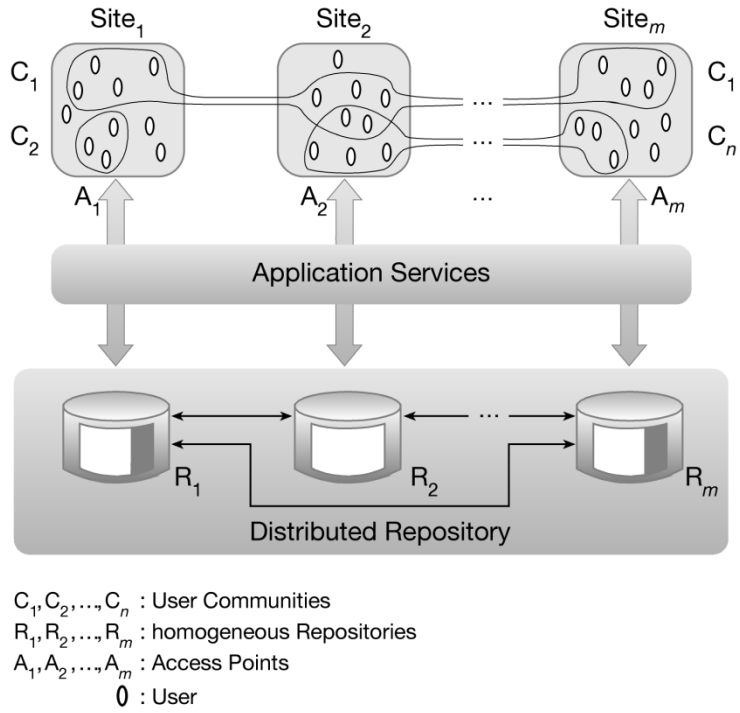

Fig. 3: Networked repositories with cross-organizational communities

As depicted in Fig. 3, each node in the edu-sharing repository network comes with a local repository that is enriched by common community services and can be embedded in locally preferred learning environments and authoring tools for content production. The latter include an OpenOffice-based editor for SCORM-compatible courseware and an offline editor for QTI 2.0-compatible tests. Each edu-sharing repository also includes a license management component that ensures that each resource in the repository has a rights-of-use license attached.

The edu-sharing system is free open source software, which can be downloaded from **www.edu-sharing.net**. The default distribution includes several authoring tools (see Fig. 2) and learning management systems.

Sharing and Reuse versus Open and Closed Content

CampusContent started with the aim to support the open content movement. In consequence, edu-sharing's license management component supports Creative Commons licenses. But as we went on, we learned from potential users of edu-sharing that open content and Creative Commons licenses are not always the way to go. Schools, for instance, do not own much digital content. Rather, in their teaching they rely on content bought from educational publishers. In Germany, most likely also in other countries, this led to the situation that different school districts spent money for the same resources that they can only maintain in their local repository and deliver to schools in their district. The heterogeneity of learning management systems and a lack of sharing infrastructure prevents a more cost-effective collaboration and proliferation of commercial educational content here.

To cope with such situations, edu-sharing allows the sharing of resources across heterogeneous learning management and authoring systems. In addition, it provides open interfaces and a trusted interaction protocol. Both together allow the integration of proprietary content pools in such a way that their content can be discovered and used from within edu-sharing while obviating the necessity to maintain copies of such foreign content in the edu-sharing repository. Through the trusted interaction protocol, there is also no need to maintain user data and access rights in edu-sharing. Rather, access rights managed by school servers are directly forwarded to the foreign content pool. Finally, the license management component is extensible to serve other licenses than Creative Commons, as well.

Collaboration in Shared Workspaces

Besides providing open access to learning content and pedagogical scenario templates, edu-sharing further supports collaborative work processes in networked "communities of practice" (Lave and Wenger, 1991). For each registered user, the local edu-sharing repository provides a personal workspace. Rather than gathering learning resources on a local storage device, edu-sharing users can manage their own, licensed and discovered open content in collections, which are represented as folders in the workspace (see Fig. 4). All resources in the workspace (and thus in the repository network) only exist once and are just referenced in collections, not copied. From such collections, teaching staff can easily embed learning resources as well as learning scenarios in courses that are created in an attached learning management system.

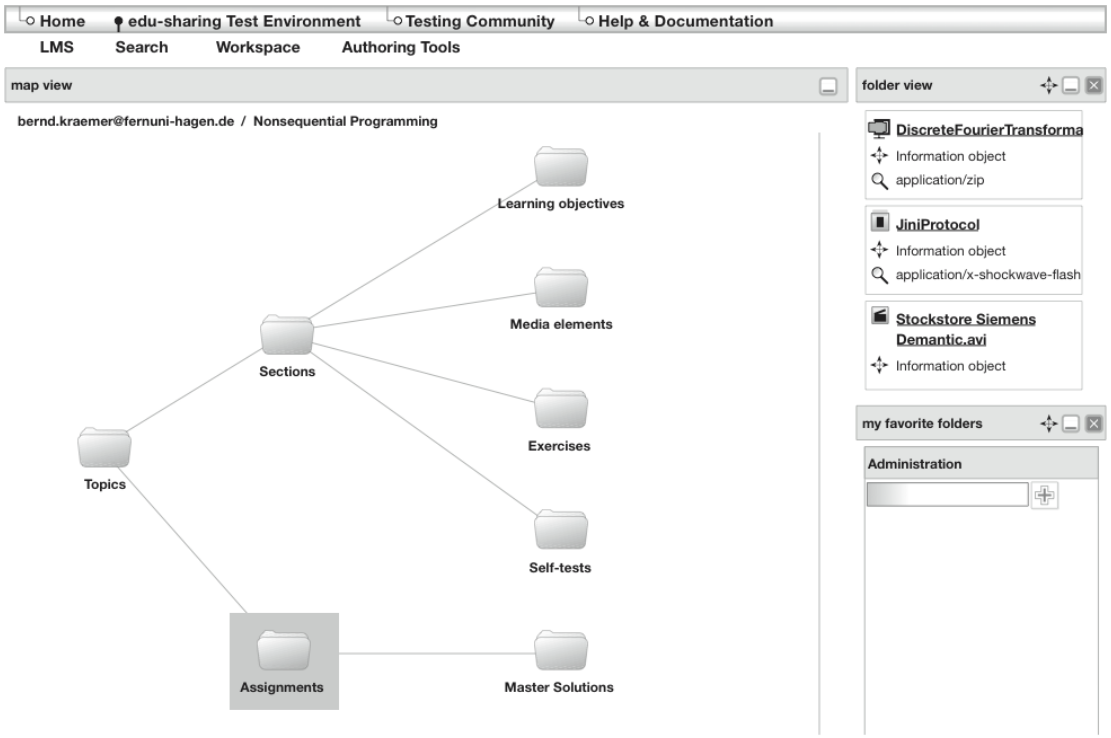

Fig. 4: Personal workspace

In their personal workspace, educators may simple want to work on their own, first. There is no obligation to share drafts or protected works with the community. However, once resources are uploaded into or created within the edu-sharing system, sharing resources with other users or groups is effortless. Particularly for the bootstrapping process of communities of practice, this strategy is promising. If single educators experience valuable improvements for their work, they are likely open to cooperate with their colleagues. They can invite trusted peers to access individual resources, selected collections or the whole workspace in read or write mode to enable collaborative work on learning arrangements.

Sustainability and Technology Evolution

To promote the strategic evolution and sustainability of the open source software, members of the CampusContent/edu-sharing community founded the non-profit-making association *edu-sharing.net* (edu-sharing.net, 2010). The association, which is open to institutional and personal members, aims to enlarge edu-sharing's current user and software developer communities, collect and coordinate their demands, and manage corresponding software development projects. While user groups like educational institutions, teaching staff and content providers can negotiate and define their needs and priorities for further development, maintenance or customization, software developers are invited to provide technical solutions based on a shared cost model.

Open Educational Resources (OER): Beyond Learning Content

It may be obvious from our sketch of the motivation behind the CampusContent Project and its outcomes that it shares the ideas of open educational resources and advances its wider definition of this concept, which includes (OECD, 2007, p. 31):

- *content* of varying granularity;
- open source software *tools* for developing, discovering, using, adapting, remixing, organizing and delivering learning content and learning arrangements and functionality for organizing communities of practice;
- *implementation resources* supporting interoperability and the design of sharable content and best practices.

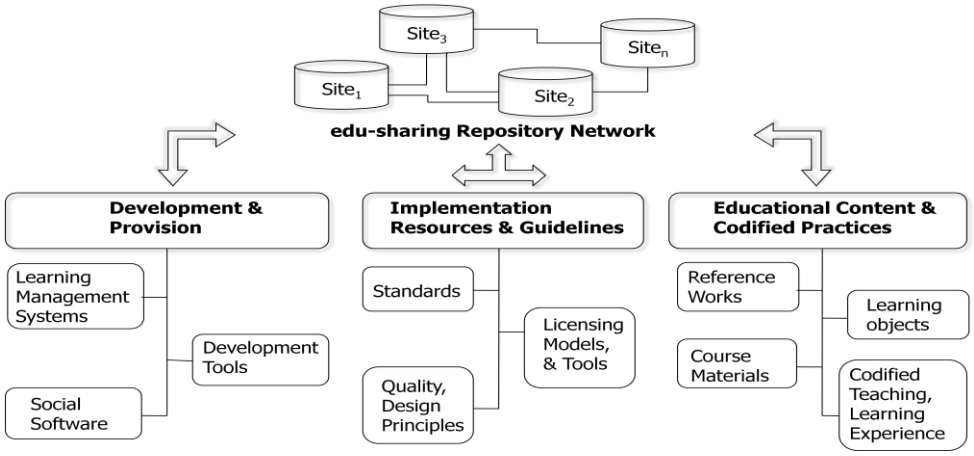

Fig. 5: Conceptual map of OER (following OECD, 2007, p. 31)

The conceptual map of OER on Page 31 of the OECD study (2007) inspired the mapping of the CampusContent Project's contributions onto the open educational resources domain (Atkins et al., 2007) as illustrated in Fig. 5.

Contributions of edu-sharing to OER

The following discussion is organized along the three components of the OECD definition of open educational resources: content, software and implementation resources (OECD, 2007, p. 31).

Content

In edu-sharing educational resources of different kinds can be managed: digital media assets including text, illustrations, simulation, video and audio clips, photos, maps, or quizzes; learning objects, which combine topical content, a learning objective and learning activities (Krämer and Han, 2009); courses and course components (Krämer and Klebl 2009); teaching and learning experiences in the form of didactic scenarios (Krämer et al., 2010), and reference works like glossaries or thesauri.

As already mentioned, popular e-learning standards such as SCORM, LOM, Dublin Core or QTI 2.0 are supported. An extensible license manager ensures that all resources in the repository are equipped with a rights-of-use license and ownership information.

Figure 6 is a screen shot of a section of a course on German postwar history that is delivered through the Moodle installation included in edu-sharing. The course references media assets, such as historical speeches of German and international politicians, facsimile of contemporary newspaper articles and historical documents, and short historical videos related to the establishment of the Berlin Wall (see, e.g., Fig. 7). These components can be found in the edu-sharing repository operated by FernUniversität.

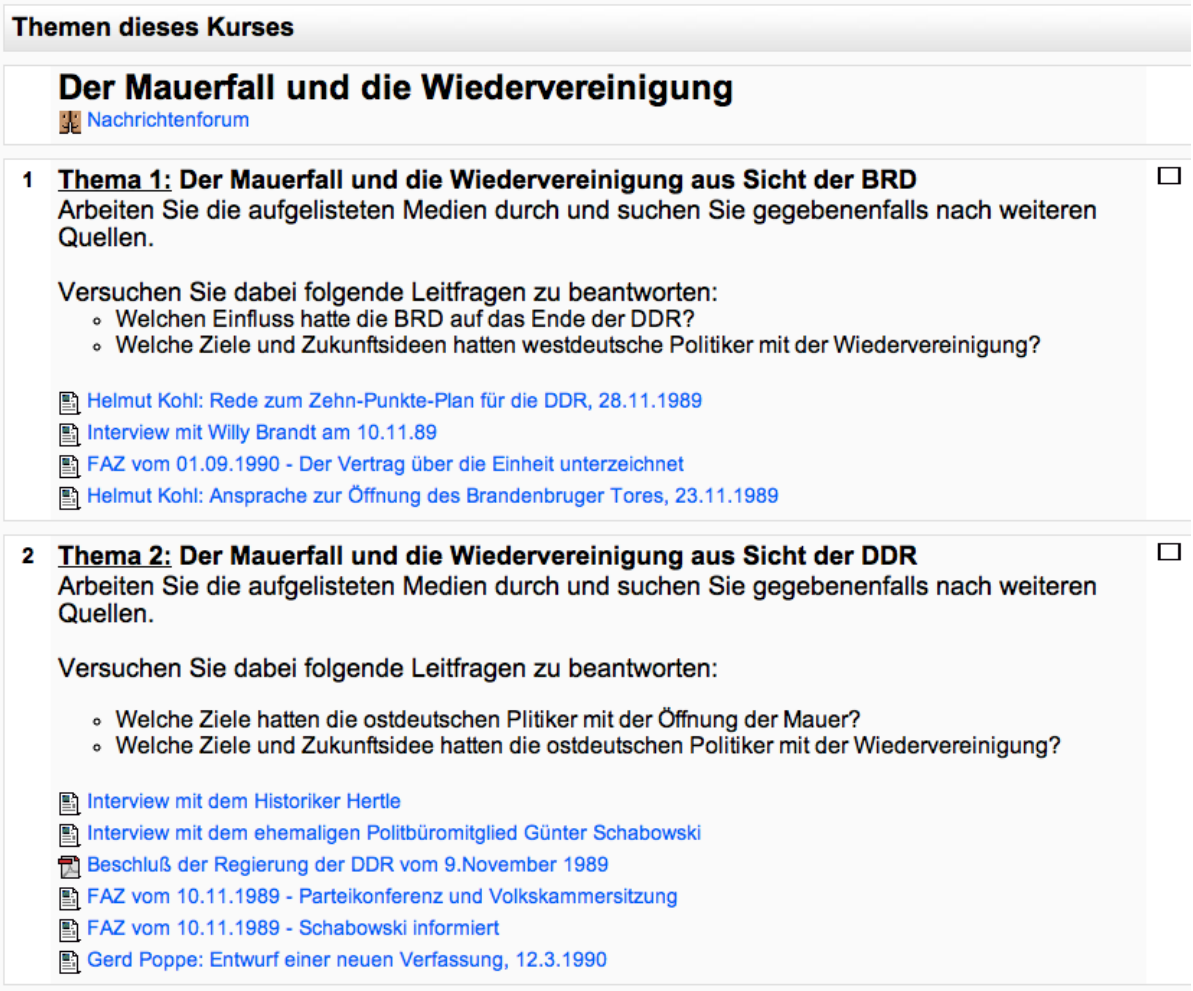

Fig 6: Section of a history course in Moodle referencing edu-sharing objects (in German)

In (Krämer and Klebl, 2009) the authors discuss the structure of a short blended learning course on Social Network Analysis. This course employs two predefined didactical scenario templates from the repository, case study and project-based learning. The authors argue that this course can be adapted to another target population, e.g., social science students rather than computer science students, just by replacing the case study and the learning project to accommodate the students' prior knowledge and skills.

Fig 7: Movie documenting the building of the Berlin War

Software Tools

Concerning *development and provisioning software*, edu-sharing comes with a range of end-user tools for creating media assets, authoring courses based on resources and scenario templates found in the repository network or personal workspaces, editing didactic scenarios, or creating QTI-compatible questions and test. As mentioned in Section 1.2, the default distribution includes popular open source leaning management systems (LMSes) that are interfaced in such a way that learning resources and didactic scenario templates can linked in a course. For instance, in Moodle, a user can effortlessly create a resource or an activity which embeds content or a learning arrangement from an edu-sharing repository. Conversely, resources stored in the LMS can be uploaded in the repository or personal workspace.

Through edu-sharing's rendering service, repository content can be played in all attached LMSes. It uses special modules for reproducing a range of graphics, sound and video files, QTI-compliant tests and exercises, SCORM, Moodle and metacoon courses. Resources hosted on closed publisher servers play their content on the own server on behalf of the customer's distant LMS-systems. Mechanisms protecting illegal copying can be integrated into the remote rendering service.

Currently, social software is realized in edu-sharing in the form of a community portal, with community building and information services. A rudimentary user tracking service collecting dynamic metadata such as the numbers and contexts of use of resources is also available. Additional community functions like resource rating, user tagging and annotation of resources are under development. We aim to implement a more comprehensive tracking tool that allows us to track student interactions with learning resources across different learner communities. These tracking data can then be analyzed for striking patterns and correlations to derive useful feedback for resource authors and re-users.

Implementation Resources

We have already sketched edu-sharing's extensible license manager and the fact that edu-sharing is open source software. The license manager acts like an agent that becomes visible whenever a new resource is uploaded or rights of use are inspected by re-users. Thus our license manager tackles the lack of awareness of copyright issues, which Hylén (2006) considered a challenge for OER.

Best practices are supported from three perspectives:

1. *Didactic scenarios* capture best practices in learning design (Klebl et al., 2010). They describe arrangements of learning, teaching and tutoring activities and pedagogical interactions. The didactics group of the CampusContent team has codified widely accepted didactic scenarios in the form of content-free *didactic scenario templates* and made them available in edu-sharing. The learning scenario editor of edu-sharing allows users to edit such templates by adding appropriate learning resources and tool bindings (e.g., wiki, forum, newsgroups, etc.) and refining or modifying predefined learner and tutor activities. Educators can also define their own scenarios and publish them with or without content in the repository.
2. *Configurable and pedagogically parameterized objects* implement design principles that were carried over from software engineering and aim at improved reusability and effectiveness in content production (Krämer and Han, 2009). Configurable objects are interactive information or learning objects that can be applied in different topic areas. They are equipped with "leveling-screws" through which they can be adapted to the actual application context. A perfect example is an animation for concept classification. Pedagogical parameterization refers to the possibility to associate an information object with different pedagogical contexts defined by a pedagogical taxonomy.
3. Design principles, guidelines, help wikis, and useful information about various e-learning topics are collected and summarized in a comprehensive *information portal*. The categories addressed include: e-learning software and tools, best practices in (reusable) e-learning content production, didactic scenarios, legal issues and other topics. This information portal is jointly developed with DINI (Deutsche Initiative für Netzwerkinformation e.V.) and ZKI (Zentren für Kommunikation und Informationsverarbeitung in Lehre und Forschung e. V.). It is continuously expanded by community members and thus represents the collective know-how of edu-sharing users and developers.

A third element in the implementation resources branch of the OER concept map copes with interoperability issues, in general, and standards as the IEEE, IMS Global and other standardization bodies advance them, in particular. We already argued that edu-sharing supports major e-learning standards including the OAI metadata harvesting protocol, web service standards and open interfaces. This will allow us to expand the homogeneous edu-sharing repository network to a heterogeneous network, which will provide access to foreign repositories like Ariadne Pools or Merlot through federated search services.

This concludes the mapping of edu-sharing features onto the conceptual OER model of the OECD. But there are two further noticeable issues related to requirements mentioned in the OECD study that we want to discuss.

Sustaining Learning Resource Projects

With its repository network and personal workspace concept, edu-sharing supports both a user-producer and a co-production model of (open) educational resources (cf., OER, 2007, p. 13). Through the coupling of different repositories and the embedding of heterogeneous learning management systems, learning resources will become “searchable across repositories” and can be “integrated and adapted across platforms” (OECD, 2007, p. 14).

Internationalization and Localization

Specific challenges of OER in a global setting are issues like internationalization and localization. For large bodies of text, there is currently no other way than translation. If the text is represented in a specific format like Connexions courses are (Baraniuk 2008), appropriate editors should allow translators to keep layout and structural information, if suitable, and just change the language of the text.

For interactive resources including movies, animations, user interaction, graphics and the like we have started to develop design patterns and structure templates that pull all language-and notation-dependent features to the interface such that they can be reconfigured. For instance, technically, inscriptions in graphics or animations can be modeled by variables in the code and bound to specific strings in a particular language at configuration time. Audio explanations of animations should be chopped into segments that are assigned to the appropriate synchronization points in the visual animation. If these synchronization points are visible at the object interface and the audio segments can be cut out, corresponding audio segments in the new language can be resynchronized with the visual animation. For Flash animations such configuration work can be done on the basis of an Adobe Flex template from which a concrete Flash animation can then be generated with the help of a Flex compiler (Krämer and Han, 2009). For Java applets, rudimentary solutions already exist on the basis of predefined Java classes supporting the internationalization of Java code. We are currently extending these concepts with a focus on learning objects.

Conclusions

Although close in spirit to the OER idea, CampusContent was not designed as an OER project. Rather it set out to design and to construct a portal and distributed repository infrastructure that supports educators in sharing, joint development and reuse of learning resources and best pedagogical practices even if they prefer to work on their own, in groups or with proprietary content. They want to use different end-user systems including content authoring tools, learning management systems and collaboration and communication services.

However, as we argued in the main body of this paper, the project's contributions address OER needs to a great extent. Our discussion emphasized technological concerns such as storage, management, retrieval, adaption, remix and delivery of educational content and codified best practices. We are convinced that these contributions meet the needs of educational practice, and first success stories confirm us in our belief.

With the new version of edu-sharing to be released in October 2010, the user interface is fully accessible at the cost of double development.

As edu-sharing has been launched only a short while ago, however, current weaknesses include a lack of a critical mass of learning resources and a relatively small user community. The sustainability of edu-sharing outcomes, the growth of its content base and its community are not ensured yet, as for other repository and OER projects.

We have also not yet decided about a suitable q*uality assessment process* for open and closed content. Our initial idea was to leave the organization of such processes to upcoming communities of practice to avoid the bottleneck of peer reviews or an editorial committee.

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Kumar, Awadhesh: E – Learning in Indian Knowledge Society: Quality Issues

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Abstract

Education acts as a backbone for the development of any society. All developed economies are the live examples of the fact that education and, in particular, higher and technical education make the roadmap for all-round progress of a country. Introduction of information technology has changed the scenario of education and distance learning with the incorporation of e-learning practices. E-Learning has made higher education a real global activity. A large number of collaborations have been made between the countries and educational institutions to make global education available at learner's doorstep a reality. To cater this need, many institutions are now offering various short-term and long-term programs through distance education. Initiating with a brief reference to quality, increasing awareness for quality assurance in education system has been addressed in this paper. The paper discusses the status of e-learning in India with special reference to higher and technical education. Quality assurance models used by various organizations have been discussed. A comparative study of various quality assurance models of e-learning have been used to support the findings and to devise the optimum model for e – learning in India and similar kind of economies in the world. Experiences of important e-learning institutions have been included to give a better input for designing the model.

Introduction

How does one define quality? In particular it is not easy to precisely decide what constitutes quality of education. Different persons may have different perspectives of quality. There are two aspects of quality in the educational context: quality of the system as a whole and quality of what the system offers to the students or the learners. In cotrast to conventional education quality covers various elements of face-to-face teaching like the infrastructure and basic amenities, social & geographical environment, professional teaching competence, administrative and finance staff, appropriateness and relevance of the curriculum, teaching-learning materials, teaching-learning processes, community support to the institution, performance evaluation of the faculty, learners ie. students and the system as a whole.

Meaning of quality in e-learning

Learning outcomes are probably most impotrtant index of quality in the field of e-learning. When we talk about quality in e-learning, we assume an implicit consensus about the term 'quality'. In fact, however, 'quality' means very different things to most e-learning providers. A general set of meanings for quality in learning may be:

(a) exceptionality and uniqueness,

(b) perfection and consistency,

(c) fitness for intended purpose,

(d) adequate return in terms of knowledge and job creation,

(e) transformation of learner and the society as a whole.

The last perception of quality, transformation, is the most relevant to the pedagogical process. It describes improvement in competence or ability as a result of the learning process

Need of Quality Assurance

E-Learning is the learning experience that is delivered or enabled by electronic technology. The delivery of learning or content can be over the intra-net, extra-net or over the Internet, via CD-ROM, interactive TV, or satellite broadcast. In terms of structure, student numbers have been exploding on university campuses. The universities have been reluctant to change their programs, both in content and delivery. They are facing challenges from alternative providers of education and training, with more focus on employability; the university professors represent a breed of career academics who are quite isolated and insulated from the changes in the real world around them; distance learning is considered second best, even though universities are hard pressed to explain the superiority of the traditional classroom processes in effecting knowledge transfer.

Indian Higher Education Scenario

Popularity of E-learning or electronic learning in India is gaining prominence slowly, but indeed steadily. This is due to the fact that more than half the population of India today is below 25 years of age and the numbers of Internet users are growing continuously. The tremendous growth of the economy in the recent past has also helped in the growth of online education in India. E-learning in India is specially popular with the young professionals who have joined the work force quite early but still would like to continue their education that may help them move up their career ladder quickly and safely. They find online education in India very convenient, as the nature of the course work does not require them to attend regular classes. Moreover reputed institutes like Indian Institute of Management, Indian Institute of Technology, Indian Institute of Foreign Trade have come in this area and are today offering e-learning courses.

India is embracing e-learning in a big way. India has learned lessons from the success of the e-way in the West and today the grim educational picture is being replaced by virtual classroom, e-tutorials etc. The major advantage of e-learning is that it is self-paced and learning is done at the learner's pace. The content can be repeated until the trainee understands it. E learning is interactive too. With the growth of e-learning, more and more pupils will opt for it, as there would be no worry of any punishment anything gone wrong. Also, there will also be no fear of coming late to class and then standing outside the classroom waiting for permission to enter. More and more working professionals would be interested in learning the e-way because of flexibility that e-learning offer. E-learning will soon become a great tool to enhance qualifications and getting promotions in the job market. So, to sum up, the future of e-learning is bright.

However, there is significant knowledge retention. High quality e-learning solutions are being developed in India with the right technology and industry support in sectors as distinct as steel, IT, automobiles, cement and telecom. Industry watchers estimate that because of its advantages, India is bound to grow in stature as the hub for e-learning programmes.

In 2002, deliberations of various committees were held that led to the setting up of the UGC-INFONET towards the end of 2004. UGC also joined this crusade of introducing e-learning. Wholly funded by UGC, UGC-INFONET provides electronic access to scholarly literature available over the Internet in all areas of learning to the university sector in India. Yet another project to provide web based training is the National Programme on Technology Enhanced Learning (NPTEL), which is being funded by the Ministry of Human Resource Development (MHRD.) This was first conceived in 1999, to pave the way for introducing multimedia and web technology to enhance learning of basic science and engineering concepts, was launched in September 2006.

Significant infrastructure has been set up for production of video-based teaching material by the Indian Institutes of Technology (IIT), the Bangalore based Indian Institutes of Sciences (IISc) and Technical Teacher Training Institutes (TTTI.) Gyan Darshan, which was launched on January 26, 2000, as an exclusive higher education TV channel to provide quality distance education by IGNOU, can be considered as an effective effort in India.

At the institutional level many institutes, mainly private as of now; have entered into online distance education and the much talked about NIIT Varsity offers training to 500,000 students annually across 33 countries. One of the world's leading management schools, the Indian Institute of Management at Calcutta (IIM-C), amongst others, entered into a strategic alliance with NIIT, to offer executive development programmes through virtual classrooms.

The government needs to stimulate a learning culture and e-learning must become a policy issue. Government must recognize the e-learning industry as a separate forum and not treat it as part of the IT enabled services or a sub sector of the IT industry.

Benefits of E-Learning with Quality Assurance

(i) ***Integration***: All institutions, research institutions, regulatory bodies, professionals, academicians and students can be integrated on regional, state, national and international level. Sharing of knowledge, experience, infrastructure and technology will enhance the effective and efficient utilization of available resources. Students can have an access to unlimited storehouse of information at any hour and from any place.

(ii) ***Access to best faculty and quality study material***: Since e-Learning has ability to cover distances, a few good teachers can be scaled up. Faculty availability is not restricted by geography or even time because of recorded classrooms. The expert teachers will also be identified and honored by their demand from learners.

(iii) ***Human bias***: E-Learning helps removes the bias of sex, religion, color, caste etc.

(iv) ***Dust free environment***: Unlike in chalk and talk method, learning atmosphere becomes dust free.

(v) ***Individualized instruction*****:** E-Learning also offers individualized instruction, which print media cannot provide. It makes learning exciting, engaging and compelling. A Blend of programmes can integrate e-Learning with face-to-face workshops, guiding, action learning and a huge range of other learning methods to cover a range of needs, styles and approaches. Private messaging readily supports these exchanges while protecting the participants' privacy. Based on the individual and/or group needs, interests, career objectives and job profiles, lesson modules can be chosen.

Experiences on Quality Assurance in E-Learning

(i) Symbiosis Centre for Distance Learning, Pune, India

The Symbiosis Centre for Distance Learning (SCDL), Pune, is the leading private sector provider of open & distance learning in India. Its learners, numbering more than 200,000 are drawn from all the nooks & corners of India, and also, from more than 40 overseas countries.

Quality is the hallmark of SCDL's working. The quality concerns adopted by the SCDL are as follows:

- The learning programs are selected very carefully, taking into consideration the market demands as well as the felt-needs of the learners. Once a tentative decision is taken to introduce a new program, its various pros & cons are discussed in the Academic Council, which is the principal body for taking all academic decisions.
- The next step is to allocate the work of writing the Self Learning Materials. For this purpose the SCDL has enlisted more than 400 visiting faculty who are all well qualified and long experienced teachers from reputed universities and colleges as well as persons with practical experience in industry.

- Electronic learning materials in the form of e-learning modules and pre-recorded DVD lectures are also prepared. The faculty preparing the electronic learning materials may, or more likely may not, be those who had prepared the SLM in the print form.
- Self assessment is an important system adopted by the SCDL. All the learning materials sent to the distance learners – whether print or electronic – contain self-assessment questions. In fact the learning material contents are broken down into sections and sub-sections, and at the end of each the learner is expected to take a pause and attempt answering the self-assessment questions. This way, the learner will come to know whether he or she has understood the content of the section or the sub-section. This process builds up the learner's confidence.
- A distinguishing feature of the SCDL is the use of most modern technology in the student progression and assessment system. Each learner is required to complete two online assignments per course per semester. The online assignments are based on the thoughtfully prepared and exhaustive Question Banks which are uploaded on the web for accession by the learners. Last but not least of the quality assurance measures cover the Student Support & Guidance System. This system has three important planks: the Personal Contact Programs (PCP), the Data Support Department and the system of quick response to students' queries and requirements.

(ii) E-Learning at Boston College

This is just one example of how 141-year-old Boston College, one of the oldest Jesuit Catholic universities in the United States, is incorporating e-learning into its time-honored academic tradition. Indeed, the older and more venerable an institution—US News & World Report ranks BC number 37th among national universities—the more that's at stake when it introduces a dramatic and potentially revolutionary tool like the Internet into the educational program. Reputation and quality are the first concerns. Important features of their e-learning programme are as follows:

- E-learning has affected everyone at 15,000-plus-student university, regardless of age, role, experience or academic discipline and mostly in a positive way. But success hasn't come without obstacles, challenges and tough decisions.

- One of the most critical decisions was assessing how e-learning would affect the hard-earned reputation, steeped in centuries of classical academic tradition. Although e-learning in the university was scaled, it was not used it as a flagship marketing tool for admissions as the curriculum was selling itself. E-learning was evaluated only in the context of its power to improve education. As a matter of fact, no distinction was made between online education and traditional education. Education per se was the only thing that matters.

- Consistent with this position, it was decided not to mandate e-learning for every course. Instead, e-learning was promoted to develop organically, driven by students, faculty and the academic environment. Several learning-related factors strengthened their e-learning adoption. E-book publishers were there to flood academia with digitized online content for a wide range of courses.

- All the classrooms were networked with state-of-the-art facilities. Faculty members were supplied with powerful desktops and laptops. A culture was developed to make students technologically savvy with e-learning experience gained in high school. Not only are they comfortable with the technology, they virtually grew up online. Their demand for online course components has propelled the e-learning adoption.

- It was determined to have a well-defined "checks and balances" to ensure proper incorporation of e-learning into the campus environment. A multiple committee structure was adopted to serve and that worked very well. Their University Council on Teaching comprised faculty members who set strategy on how e-learning would play out on campus. They also devised an e-learning Action Group, a collaboration of college reference librarians and academic initiatives. Another group, Academic Technology Services, promotds e-learning on campus and assists in training and technical support.

With these key governance and infrastructure decisions made, strong results were obtained with e-learning across a wide range of disciplines. Extracurricular activities were also got boosted by e-learning technology.

(iii) APT Academic Solutions

Education Service Providers are realizing the need of adopting e-learning to open up to remote markets. The way we learn has changed and is changing more very rapidly as the use of computers in education is growing and being widely accepted. E-Learning brings teachers and students together effectively, anywhere and anytime through the Internet. Online learning can synchronously connect thousands of participants worldwide while offering various asynchronous learning options. It also offers various choices of teaching-learning styles, teachers' preferences and students' needs. These all make the future of eLearning very bright.

Realizing the need, **Apt Academic Solutions** (AAS) adopted e-Learning for their students a few years back. AAS, based in Hyderabad, is an offline and online education service provider. Having worked diligently for about three years now, AAS has succeeded to make a difference in the new age of teaching with their initiative, dedication and commitment. They have encouraged many students to pursue their dream of getting into premier engineering institutes of India by helping build a strong foundation in the core subjects of Mathematics, Physics and Chemistry. Their expert guidance and Web-based training have proven to surpass traditional methods of teaching with added advantages of flexibility in learning, better teacher-student interaction, time and cost effectiveness and easy accessibility across distances.

- The initiative of using the Internet for teaching at AAS came from one of the AAS founders' experience when he had to teach a student in Hyderabad while he was in Dubai. Later on, they made their first breakthrough initiative in Bokaro for an e-class venture. They started a Biology class with five students and within a month, the number raised to 22. Gaining confidence from this initial result, AAS decided to keep focus on this initiative by gradually making progress and development. Now, they have opened six virtual centers in India, and WiZiQ's **Virtual Classroom** has been chosen as the official Web conferencing solution for their e-classes.

- The collaborative Web conferencing environment that WiZiQ offers is perfect for AAS' vision to provide quality education across India. With WiZiQ's Virtual Classroom, AAS has been able to provide an online synchronous communication environment between their teachers and students, using video and audio or through text chat, and to share presentations, documents and images on an interactive whiteboard. With all these options and without getting affected by the geographical and situational barriers, AAS is now providing an equal opportunity for quality education to every student across India.

- This story is all about the super success of AAS in IIT-JEE 2009, one of the most difficult examinations in the world, and the power of e-learning. After 25 years in Port Blair AAS has achieved results in IIT-JEE with 5 selections, out of which 1 is in the Main merit list and the rest in Extended Merit List, but the beauty of this result is that students were trained using only online teaching. This result is a revelation to everyone who are strong believers of the conventional-school-of-teaching thought and face-to-face teaching.

- To give its online students an edge over other students, AAS's technical team developed an online testing portal - toptrigger.com, which has now become a force to reckon with for engineering entrance exams in India. This is an example of the fusion of academics and technology to provide quality services in the field of education, without the hindrances of geographical and economical barriers. Not only helping students to test their skills online, AAS provides the necessary help to clear doubts by conducting online classes on request.

The effects of this result is that many schools (the believers of conventional mode of teaching) in remote as well as in main locations are trying to introduce online education in some way or the other, providing an impetus to online education in remote areas. Naval Public School, Port Blair has recognized the power of e-learning and has introduced this method of teaching in their school for the normal curriculum.

(iv) Indian Institute of Management Ahemdabad (IIMA), India

In the contemporary business world, competition is rising, and there is a need of practicing managers, business heads and executives to upgrade their knowledge and skill set to address the new global business paradigms.

Looking to such needs, IIMA has created a new initiative that delivers cutting edge management education in real time through Virtual Learning Programmes. Without leaving their current jobs, executives can now avail the opportunity to enhance their capabilities and skill sets with the premier knowledge delivery expertise.

IIMA has tied up with National Institute of Information Technology (NIIT) Imperia to extend its reach to the working executives through Virtual Learning Programmes delivered online. These programmes are carefully designed and structured to reflect the most relevant needs of industry. Each programme focuses on new developments and latest trends in managerial practices relevant to the current global patterns. These specialized programmes ensure that the participants:

- get an opportunity to have face to face interaction with the faculty.
- develop capabilities and skills.

- apply the learning to their organizations.
- share their learning through the platform.
- work on live project and report their findings.

An upgraded, specialized skill set and a sound academic and theoretical understanding of the concepts is what the participants can expect after completion of these programmes. Performance in the organization is enhanced and visibility increased, which leads to better future prospects for these candidates.

These management development programmes are aimed at the best of working professionals who are motivated and serious about self-development and are prepared to put in time and effort.

The entire pedagogy is conceptualized by the faculty, which is specially designed for delivering education over a technology-based platform. NIIT brings to the collaboration the expertise of technology based distributed mass education along with its strength of reach across the country and its expertise to create a unique student experience for geographically dispersed students.

Two types of programmes are offered: General Management and Sectoral or Functional. The Management Development Programmes (functional) offered in collaboration with NIIT Imperia is aimed at working professionals with 3-5 years of experience. Currently, the following programmes are offered—

1. Strategic Human Resource Management Program
2. Communication And Personal Effectiveness
3. Strategic Business Comunication Program
4. Acceleratd General Management Program

Program Delivery

The programmes are delivered in real time through broadband based education platform. However, the sessions are spaced out to allow participants the opportunity to assimilate the learning and apply it within their organizations. Thus, learning is a rich interaction of activated minds that can test the theories and derive fresh, creative solutions to problems in real life. A two way video interaction guided by the faculty adds high rigour to the programmes being offered.

IIMA plans to expand its footprint by rapidly scaling up more centers and studio facilities. The technology which has been developed in-house is being constantly upgraded in tandem with global technology advances.

Program delivery is currently happening through the studio at IIMA using the Synchronous Learning Software. Two more studios have been set up at Kolkata and Indore. Attempts are being made to come up with more studio facilities nationwide for ease in conduction of classes when faculty is on the move.

SBA and Trump University: Innovative Online Training Course

The U.S. Small Business Administration, nation's largest financial backer of small businesses and Trump University, an online educational institution have teamed together to develop a new free online training course on 'How to Start a Business on a Shoestring Budget', designed to help entrepreneurs understand how to take their small business ideas to market despite limited outside resources.

The SBA and Trump University have combined the best that each organization offers, bringing together a vast array of resources, information and experts to guide students through the essentials of planning and executing a business idea by bootstrapping, a common method used to minimize the amount of outside debt and equity financing needed from banks and investors.

'How to Start a Business on a Shoestring Budget' is a self-paced course available through the SBA's Small Business Training Network, a virtual campus of business courses, trainings, education resources, learning tools and information assistance at www.sba.gov under the "Training" icon. It is a creative training experience and interactive assessment tool featuring fictional entrepreneurs who are engaged in raising money for their small businesses, while the student entrepreneur provides advice on how to help, evaluate readiness for starting a business. An added highlight is the availability of "Ask the experts" video clips, which are strategically featured throughout the course.

The co-sponsorship with Trump University is an inventive partnership that provides the best in small business resources to the students of entrepreneurship, while offering a unique opportunity to learn about one of the most challenging areas of starting a small business—business financing.

The course helps to evaluate eight key areas of business start-up on a shoestring, including what it takes to make something out of nothing, market research for the budget minded, budget branding and what to do when you outgrow your bootstraps.

The SBA's Small Business Training Network at www.sba.gov/training offers a range of online business training and counseling tools to assist entrepreneurs with business start-up, from developing marketing strategies to effective employee management. It also provides valuable information for existing small business owners. The training network is an easy-to-use tool that provides 24-hour access to business courses via the Internet.

Atlantic International University

Course Offered— Entrepreneurship Business & Management

This course introduces many aspects required to create a successful new venture. It is however, just a starting point. The outcome of this course will not be a fully researched business plan, ready to implement. The effort required for meeting such an objective would consume many months of a prospective entrepreneur's time. Rather, this course will help to give the students a feel for what is

involved with being entrepreneurial and if the role of entrepreneur is one he or she might find appealing.

The life cycle of a start-up company from the points of view of inventors, engineers or investors includes issues of planning, dealing with legal and tax issues, financial opportunities at different stages, and sources of technical assistance. The course also examines creativity in start-ups and creative gap analysis.

After completing this course, students are able to:

- Apply the entrepreneurial process
- Analyze the feasibility of a new venture business concept
- Evaluate his or her own entrepreneurial tendency and ability
- Brainstorm ideas for new and innovative products or services
- Use a variety of feasibility tests, assess and select prospective new venture concepts for further study
- Conduct focus groups, surveys, and other methods for researching customer reaction to various new venture concepts
- Conduct a variety of secondary research activities to analyze competition, market trends, industry structures, and other issues relevant to specific new venture concepts
- Examine and analyze issues related to intellectual property protection for specific new product concepts, (e.g., patent and trade name searches)
- Create promotional items related to specific new product concepts, (e.g., advertising themes, slogans, etc.)
- Investigate state and federal regulatory requirements for specific industries by contacting relevant agencies
- Describe how to investigate financing alternatives for specific new venture concepts

This course utilizes a variety of assignment types in exploring the topics of Entrepreneurship including reading, both online and textbook based, individual assignments involving flash and java presentations, online research, writing assignments, self-assessment exercises, and group projects involving discussions and collaborative research and idea formulation.

Quality Issues in E-Learning: A comparative study and Modified Quality Assurance Model for E-Learning System

Two important facts converge to make this recommendation a key part of any model for online learning. The first has a core principle of effective pedagogy. Microsoft PowerPoint presentations or Word documents saved in HTML format don't allow learners to do anything except sit in front of their screens and click through text. The second converging fact is that early efforts at e-learning suffered a high rate of attrition because many learners complained that the content was boring and disengaging.

Based on the openion of the recruiters, students, in–service employees looking for knowledge updation, experience of organizations running distance learning programmes, the main quality issues with such programmes are:

- Poor branding of the programmes leading to indifferent attitude of organizations imparting e-learning, students and recruiters
- Non-involvement of recuiters and other stakeholders in the programme management
- Insufficient and outdated learning material
- Lack of in-depth knowledge in the course material
- Insufficient or even non-existing practical training component
- Loose deadlines for uploading / transmitting course material, regular assessmet of student assignments, receiving assignments from students, examination, results, feedback etc.
- Poor feed-back analysis system
- Availability of an adequate and reliable technical infrastructure to support and sustain e-learning activities.
- Technical skills of Instructors and students to use e- learning tools.
- Redesigning of courses to incorporate e-learning effectively into pedagogy.

To address these quality issues, in the modified quality assurance model:

- Courses should be planned on the basis of market demand, specially for the students aspiring some good placement.
- As the existing employees, entrepreneurs, researchers are one of the major target group for distance learning courses, demand of such groups should be given due consideration. Availability of internet and other relevent resources are the aided advantage for targeting these groups.
- E-learning can also be useful for remote areas where the knowledge of latest developments to improve quality of life is necessary. However, availability of necessary infrastructure is main constraint in successful imlementation of the programme. It should be well taken care of before launching such programmes.
- Course curriculum should be designed by an expert committee consisting of fair representation from potential employers, trainer organizations, well established academic institutions, students etc.
- As the course learnt through distance learning is an aided academic tool, the course structure shoud focus more on practical aspects of the subject.
- An execution-cum-monitoring committee comprising of experts from each area should be constituted to keep strict vigil on assessment. This committee should also be entrusted the job of detailing instruction procedure. This committee should also be responsible for flawless on-line infrastructural system. timely uploading of material on website / transmission of course material.
- A course committee shold be constituted for preparing detailed instructional material for the students. This commiittee should also identify the laboratories for practical work, if required in a particular course, and to specify the time schedule when the students will

complete their practical work. This period should be decided on the basis of convenience of laboratory resources and student's free available time.

- Experienced faculty from reputated academic institutions and senior people from industry should be involved in assessmemt of students apart from the regular faculty of the institute imparting distance learning.
- Though the course material is normally updated regularly by the faculty, it should also be sent to experienced faculty from reputated academic institutions and senior people from industry for their comments. The inputs received from them should be properly incorporated.
- To activate students so that they get engaged with content better, learning ware should contain multimedia interactions, such as simulations, explorations, games, and drag-and-drop exercises. Animations, video, and audio round out some of the stalwarts of rich media.
- Each programme should be accrediated, not only with standard accrediated bodies but also with important recruiters of the students.
- A strong feed-back system should be designed and action should be taken immediatelly and on priority on good suggestions / guinuine complaints.
- Benchmarking of all the programmes should be initiated.
- Keeping the importance of QA for e-Learning, it is important to develop framework for formal quality assurance of e-learning content. As a first step to this quality metrics have to be developed that can be used for quantifying the various quality parameters of an e-Learning tool and the content. The development of quality metrics and the framework can become the base for developing the QA tools, which can collect data on various aspects, analyze and arrive at quality measures using well- understood models and then grade the e-Learning environments.
- A mathematical index should be devised for determining quality status of each programme. The quality index`should be based on students' performance, accreditation grade, placement index, emplyers' openion about the course structure, feedback of the students, feedback of employers about the performance of their employees who have done such course etc. This index may differ a little depending on type of institution and type of courses.

Conclusion

Compared to an almost 80 per cent literacy rate in urban India, that in rural areas is only 56 percent. Further, the average teacher: student ratio at primary level is 1:58 in rural regions. Improvement of connectivity is another area of concern. India needs to increase penetration in terms of PCs and communication lines for any e-Learning project to be successful. The high cost of ownership, which proves to be a barrier, needs to be lowered. The Service providers, including the Government need to reduce the tariff levels. As the field becomes more and more competitive, this is bound to happen.

Further, a steep rise in the industrial growth of the country can be sustained or even improved with continuous update of the knowledge and by transforming present work force into a techno savvy one. E-learning may be a good and effective tool for the same if proper quality assurance measures are followed.

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Lane, Andy B.: Visual mapping approaches for considering the strategic rationale for the implementation of OER in higher education institutions

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Abstract

Open educational resources (OER) have become a significant part of the general discourse around higher education and a number of institutions and governments have implemented initiatives to develop and use OER on the basis that they will help transform educational practice within and between higher educational institutions (HEIs). Nevertheless there has also been considerable comment and concern by many involved in higher education that OER are not sustainable financially and unlikely to be truly transformative of policy and practices in higher education. This paper reviews the existing published evidence and argues that all institutions need to properly consider whether and how OER fit in to their strategic plans and that this can usefully be done through the help of visual methods. Visual methods such as paper or computer based mapping techniques enable users to capture as much information as possible through a mediated conversation around the holistic representation of their collective views. This need for undertaking strategic reviews is mainly illustrated through the work of the EADTU led Multilingual Open Resources for Independent Learning (MORIL) project where workshop participants from HEIs used Kurt Lewin's Force Field Framework to examine both intra institutional and inter institutional factors that were driving or restraining them in the implementation of OER. A major outcome of this work is that OER are another valued factor in the evolution of higher education policy and practice and that progress will be evolutionary rather than revolutionary.

Introduction

Open educational resources (OER) have become a significant feature in discourses about the future of education, and higher education in particular (Atkins et al, 2007; Geser, 2007; OECD, 2007). Many higher education institutions have actively created and published such resources over the past few years, following the lead of the Massachusetts Institute of Technology with their OpenCourseWare[77] initiative and as evidenced by the growing membership of bodies such of the OpenCourseWare Consortium[78]. Currently the majority of OER are the products of single institutions, such as MIT, but

[77] www.ocw.mit.edu

[78] www.ocwconsortium.org

some are more community based such as Connexions[79] and WikiEducator[80], albeit sometimes with the publishing infrastructure supported by particular institutions. And what nearly all these activities have in common is that they have relied in part on the support of charitable organisations, most notably The William and Flora Hewlett Foundation[81], to get started. While charitable organisations are continuing to pump prime a variety of OER initiatives (but may easily change their policies to meet new priorities), they also expect such initiatives to become self sustaining as they will not provide recurrent funding. This issue of sustainability has been a significant feature of many discussions and of many reports (e.g. Geser, 2007; Guthrie et al, 2008) and papers (e.g. Wiley, 2006, Lane, 2008a). This means that all higher education institutions adopting OER, whether private or public, have to carefully evaluate why they are doing so and how they fit in to their strategic aims (Lane, 2008a).

To consider adopting OER, individual universities need to carefully consider the changing marketplace for higher education that may be created by the widespread adoption of OER. Most higher education students today have a relationship with just one university in their life. At that university they have any number of individual relationships with individual professors and fairly small groups of fellow learners. Many other potential students are denied access to this because of scarcities in prime resources—lecture rooms and professors (Lane, 2008b). There are now more people than ever wishing to participate in higher education, and increasing numbers of them want that participation to be more flexible to meet their needs. They want to be able to combine modules from different universities. They want to get credit for other types of study and experiences. They want to be full-time at some points in their life and part-time at others. They want to stop and start up again when they can. They may still want to study when they are retired. They may want to be teachers, as well as be taught.

Publicly supported and funded open universities have been in the vanguard of opening up education for more people and giving them more flexibility in their studies. Some private online universities such as the University of Phoenix and corporate universities attached to multinational corporations are extending this social economy into a fully market-based economy. The really significant development for open education is the advent of Internet-based social networking and collaborative technologies. This enables far more people to be producers of resources and providers of particular services—such as tutoring a specific course for anyone, anywhere. The marketplace is global, not just local or even regional. So, in principle, all can become producers and consumers of open education. However, the Internet and OER do not spell the end for traditional universities any more than open universities have done so, or any more than radio has replaced printed texts or television has replaced radio. They both expand the overall market and differentiate it into a greater number of sectors, including the social element of the economy. However, it may be that the Internet and open education, now the smallest sector in the market, will become the largest sector in the education market.

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[79] **www.cnx.org**

[80] **www.wikieducator.org**

[81] **http://www.hewlett.org/programs/education-program**

What is the impact of 'free' content on educational business models?

'It's the economy stupid' is a well known dictum and like it or not, it is economics in its broadest sense that is driving the growing phenomenon of apparently free goods and services. This phenomenon is fully covered in the writings of Chris Anderson of Wired magazine (e.g. Anderson, 2008). Goods and services being free at the point of use is not new as it has been a part of many public services e.g. healthcare in the UK and even a few commercial services e.g. free newspapers. Of course, in both cases, there are other sources of funding that support the 'free' service or product – taxes for healthcare and advertising for newspapers. What is different between them is that in the former case nearly everyone 'pays' for the service through their taxes while in the second it is only a proportion of users who may avail themselves of the products and services being advertised. What is happening more and more at the moment is that basic products are being priced much lower or at no cost and revenue generated by other means (taxes, subscriptions, added services, advertising revenue etc). The most high profile example of this is the rock band Radiohead allowing free download of their latest album (which, when in digital form, is very abundant) and inviting people to pay whatever they want but also realising they will make more money from ancillary services, especially live performances (which are very scarce).

So, will we see an explosion of free resources (or at least free at the point of use)? Yes, in the sense that there will be lots of course materials that are free to access (and more). However this is just part of a much wider movement of opening access to resources online, whereby academic resources have often been in the vanguard (Guthrie et al, 2008). There have been some detailed studies[82] made of the ways in which academic resources can be opened up and adequately funded to do so. Most of these case studies look at individual open projects within institutions rather than whole institutions opening up with their resources but in summary they found:

- That there is no consensus on sustainability and how to achieve it
- There are tensions between sharing and generating funds
- Projects are experimenting across multiple strategies and sources of funding
- Cost control is as important and raising funds
- In kind contributions from host institutions was often significant

As already noted, none of the case studies in these reports are whole higher education institutions dealing with OER, but two factors of five they identified as influencing sustainability are dedicated and entrepreneurial leadership and a clear value proposition, both of which are important for any institution as well.

[82] The series of publications commissioned by the Strategic Content Alliance in the UK cover this very well – see **http://sca.jiscinvolve.org/wp/business-modelling-publications/**

New educational business models or old models revisited?

Much of the new open education movement embraces OER and open licensing but has not properly considered the practices of the established Open and Distance Learning (ODL) movement. ODL can be operated at scale so that thousands can study the same course at the same time, not just tens as is the case for campus and classroom based teaching (Lane, 2008b). Therefore open education can widen participation in higher education (and other levels of education) greatly. The type of support models used in ODL can also enhance access to groups who would not previously have tried higher education as noted by Gourley and Lane (2008) and Schuwer and Mulder (2008). They also note another significant change which is the greater recognition of non-formal and informal learning achieved through open education that can replace or supplement the formal learning offered by existing HE institutions. This is the lifelong learning agenda where individuals may operate a personalized portfolio approach to their post secondary education, picking up formal bits of education from different providers and mixing it with non-formal learning experiences and expecting recognition of their achievements to come from trustworthy professional organizations e.g. Universities, Professional associations and/or peer review by a trustworthy community of people working/active in the same field as they are. In other words open education opens up not only who produces the 'content', the 'context' in which the 'content' is learned but also who validates that learning so that it has currency in the labour and/or interest markets.

Consider also how universities make educational resources available to learners. In a traditional, campus-based, or 'closed' university, the educational resources are only available to registered students within the perceived walls of the University, and yet most learners are outside these walls, and only a few in their hinterland served by extra mural activities (Lane, 2008b). Universities also limit the number of students they enrol for the reasons noted earlier, and determine the students' entry through selection methods such as previous educational achievement. Students are largely registered in whole programs and not individual modules. Further, most universities serve full-time students. Part-time students must structure their time around the institution's schedule, which can be difficult for those who work or have family and other commitments. The students must come to the campus to participate in the educational experience. The methods of teaching used are also very limited (and limiting): Students attend professors' lectures, along with some seminars, workshops, and laboratory, or other practical activities. Educational resources are housed in a physical library or bookstore. Moreover, learning is assessed primarily through examinations and similar means.

This picture is extreme for effect, but the experience of a traditional university is largely an individualised process where individual lecturers and professors devise, specify, and deliver the courses studied by individual students even though present as groups in a classroom. The students are therefore largely guided by the views of a single source even though they may read the views of others in assigned texts. In contrast Open Universities have sought to open up higher education to greater numbers and teach and support students in a greater diversity of ways. What is clear is that learning in classrooms with a teacher at the front is now a small part of the complete picture and that individuals will be undertaking a wider range of learning opportunities, both formal and informal, throughout their lives, by themselves, in groups, at home and at work, to name but a few modes. Although the shape of this market may be decided by the future users of open educational resources, not the current producers of closed educational resources, current producers have the opportunity to

influence what happens and decide what role they wish to play. This was the starting point for the MORIL project.

MORIL

The European Association of Distance Teaching Universities (EADTU[83]) began working on OER strategies in lifelong open and flexible learning through an initiative known as Multilingual Open Resources for Independent Learning (MORIL[84]). EADTU is an institutional network and aims to promote the progress of open and distance education and e-learning world, through active support of the institutional development of its members and to the co-operation between them in strategic areas. MORIL was funded by a William and Flora Hewlett Foundation Grant and the aim of the initiative was to gain more experience about the use of educational resources in higher education.

In particular, it was an attempt to learn and share policies and practices from The Open University in the UK (Gourley and Lane, 2008) and the Open Universiteit Nederland (Schuwer and Mulder, 2008), who were early adopters of OER amongst ODL institutions (Van Dorp et al. 2006) with the other members of EADTU and beyond. Some preparatory work and discussions as to what this would imply for universities had begun before a grant application was made to the William and Flora Hewlett Foundation and concurrently universities individually started having consultations with many experts such as those of The Open University. These experiences were fed back into joint network meetings but it was felt that EADTU members needed to collectively obtain insight into the pros and cons of OER, and gain further experience with ways of working, sharing, and partnering around educational resources. Therefore the primary objective of the successful proposal was the organisation of a series of best practice seminars related to OER strategies, dissemination and capacity building. While this began with the involvement of just the members the activity was also expanded to other institutions through the organisational and financial support of both the European Commission and UNESCO. Furthermore, these workshops were to be a mix of presentations and focussed discussions and it was decided that an effective way to focus those discussions was through the use of diagrams (Lane, 2002).

The first seminar, on strategy implementation, took place in May 2008 at The Open University in Milton Keynes (UK), and was intended for high-end representatives of the consortium members. They began with the presentation and discussion of existing strategies employed by The Open University (the case of OpenLearn[85]) and the Open Universiteit Nederland (the case of OpenER), dealing with issues like: sustainability, technology, IP, curriculum, academic participation, quality, and organisational structures. They continued by looking at various possible institutional approaches for the member institutions; using paper and computer based visual mapping techniques.

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[83] **www.eadtu.nl**

[84] **http://moril.eadtu.nl/**

[85] **www.open.ac.uk/openlearn**

The second strategy development seminar was held in October 2008 in Leuven (Belgium). It aimed to facilitate the knowledge transfer of best policies and practices between regular Universities and ODL Universities, again using visual mapping techniques alongside presentations and panel discussions with representatives of the participating Universities and the European Commission.

The third strategy seminar was held in March 2009 at the UNESCO Headquarters in Paris and explored the potential of OER for improving the provision of education in Africa, Arab States, Asia, the Pacific, and Latin America, incorporating the development of relationships with regional and global networks.

As part of the process of running and building on one seminar to feed into the next, an open workspace[86] was created in the LabSpace of OpenLearn where many of the outputs from each of the seminars were published for members to access and review, and which has been used for the following analysis.

Visual mapping to aid strategic thinking: Seminar 1

The visual mapping workshop undertaken at the first seminar was aimed at getting high end representatives of the participating institutions to explore the key issues related to the development and dissemination of OER at their own institution through the creation and subsequent analysis of 'knowledge maps', both paper and digitally based.

Force Field Framework Maps

The Force Field Framework is a mapping technique devised by Kurt Lewin (1951) used to identify the forces driving and restraining change in a given situation. It allows the magnitude of those forces to be represented as a diagram or map (Figure 1). It is often used by groups who are trying to establish what impact a proposed solution is likely to have during the implementation process of a project. It allows all those involved to contribute and see all the factors that have been identified and rated. In the case of MORIL, Force Field mapping was used to focus on two important aspects of OER development: strategy implementation and strategy development.

Force field mapping on paper

Attempts to implement a solution to any problem are bound to be subject to a myriad of forces - some helpful i.e. 'driving' and some unhelpful i.e. 'restraining'. It is important that all these forces, both supportive and otherwise, are identified and their relative impact evaluated. To achieve this aim the Force Field map must adhere to certain rules: for example, participants are encouraged, using their marker pens on Flip chart paper, to use a rounded box for the "subject, question or issue; to use directional arrows as well as appropriate labels and a key to the diagram or map. It is worth noting that groups may not adhere strictly to these guidelines and interpret them to suit the group consensus (in the workshop discussed here a scale of 1 to 5 was used for strength of force with 5 being the strongest level of force). Examples of the paper-based maps are given in Figures 2, 3 and 4.

[86] http://labspace.open.ac.uk/course/view.php?id=4341

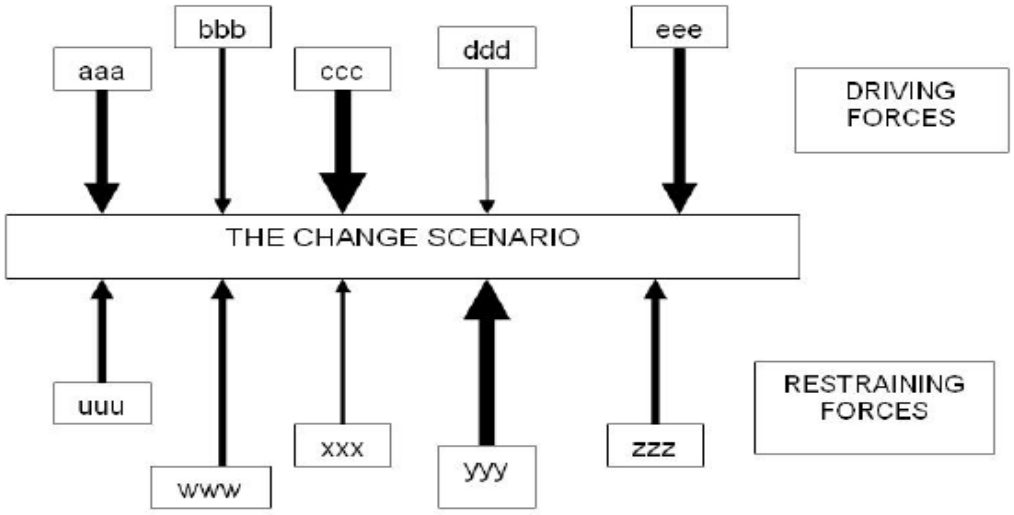

Figure 1: General Format for a Force Field Framework Map[87]

Force Field Mapping in Compendium

Compendium[88] is a software tool that supports real time knowledge construction in meetings, and, equally, can be used for personal information management and reflection. It is a robust hypermedia mapping tool that is freely available, with a growing community of practice. It has also been integrated within the Moodle Virtual Learning Environment as part of the Open University's OpenLearn initiative. For this study, Compendium was used to capture, and later analyse and evaluate, the individual workshop outcomes, namely the paper based Force Field maps and resulting synthesis map. Each paper-based map was re-created in Compendium using the software's visual tools. Thus, icons were used to represent the driving and the restraining forces, for example, as well as the inclusion of the appropriate textual labels that groups had identified. Icon sizes were also adjusted according to the groups' force strength classification. Greater details of the processes involved, such as the use of facilitation and the construction of the Compendium maps, are given in Okada et al (2010).

The Sense Making Process using Force field Maps

During the workshops each group used a different approach to what was, ostensibly, the same task. Some groups started by brainstorming their ideas, bringing in and discussing as many key issues as possible followed by recording both the driving and restraining forces of the change scenario. How these discussions were initially recorded within the groups varied. Some group members made notes or lists whilst others attempted to draw their diagram straight away, recording the driving and restraining forces directly onto the large piece of paper. The diagram (and resulting knowledge map)

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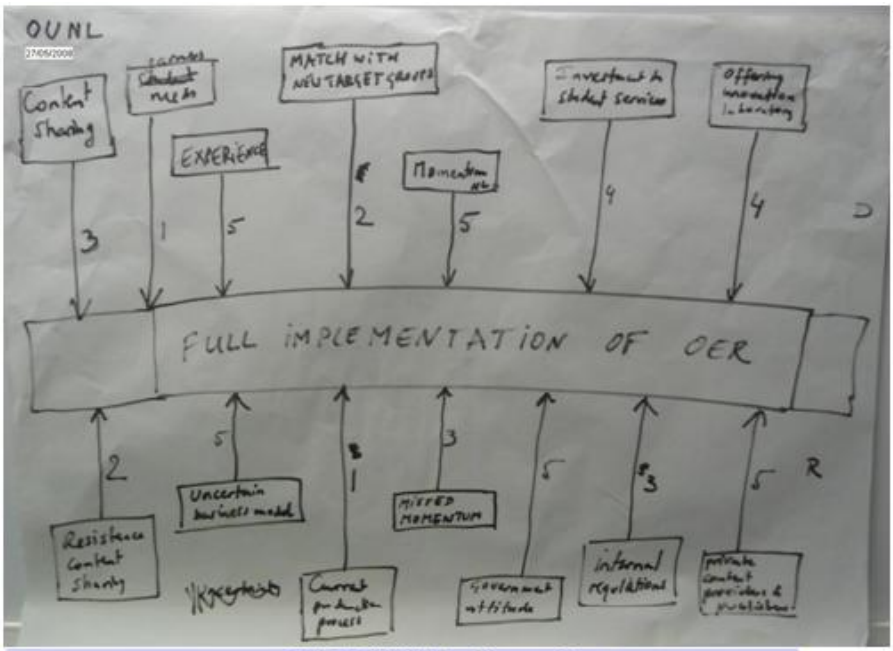
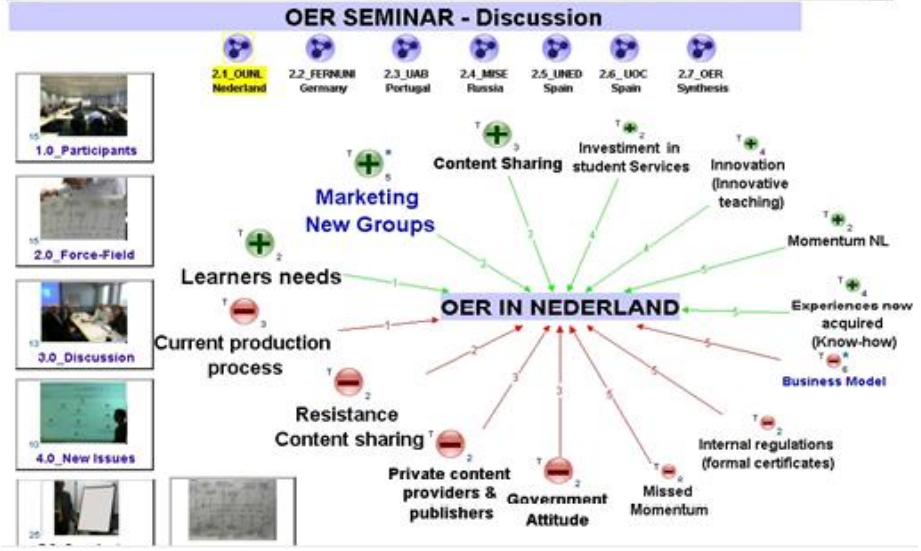
87 http://labspace.open.ac.uk/file.php/4341/kmap/1226932028/Seminar%201%20Knowledge%20map.html

88 http://compendium.open.ac.uk/

produced by the Open University of the Netherlands can be seen in Figure 2, with further examples in Figures 3-4. It is a good example of how such details have been recorded on paper, as a diagram, as well as an illustration of how such information can then be represented as a Compendium knowledge map.

Figure 2: The original Open Universiteit Nederland paper-based map alongside the Compendium V Version[89]





89 http://labspace.open.ac.uk/file.php/4341/kmap/1226932028/Seminar%201%20Knowledge%20map.html

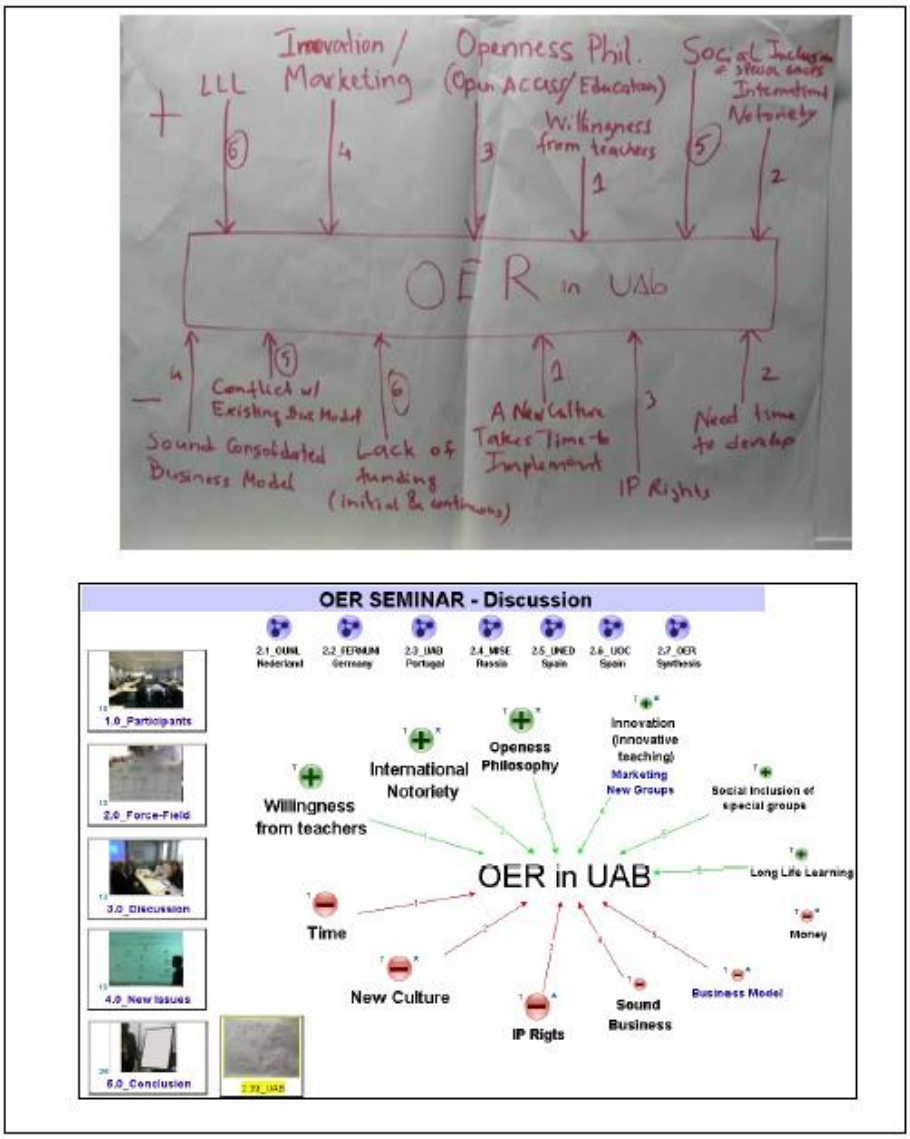


Figure 3: The original Universidade Aberta paper-based map alongside a Compendium version[90]

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http://labspace.open.ac.uk/file.php/4341/kmap/1226932028/Seminar%201%20Knowledge%20map.html

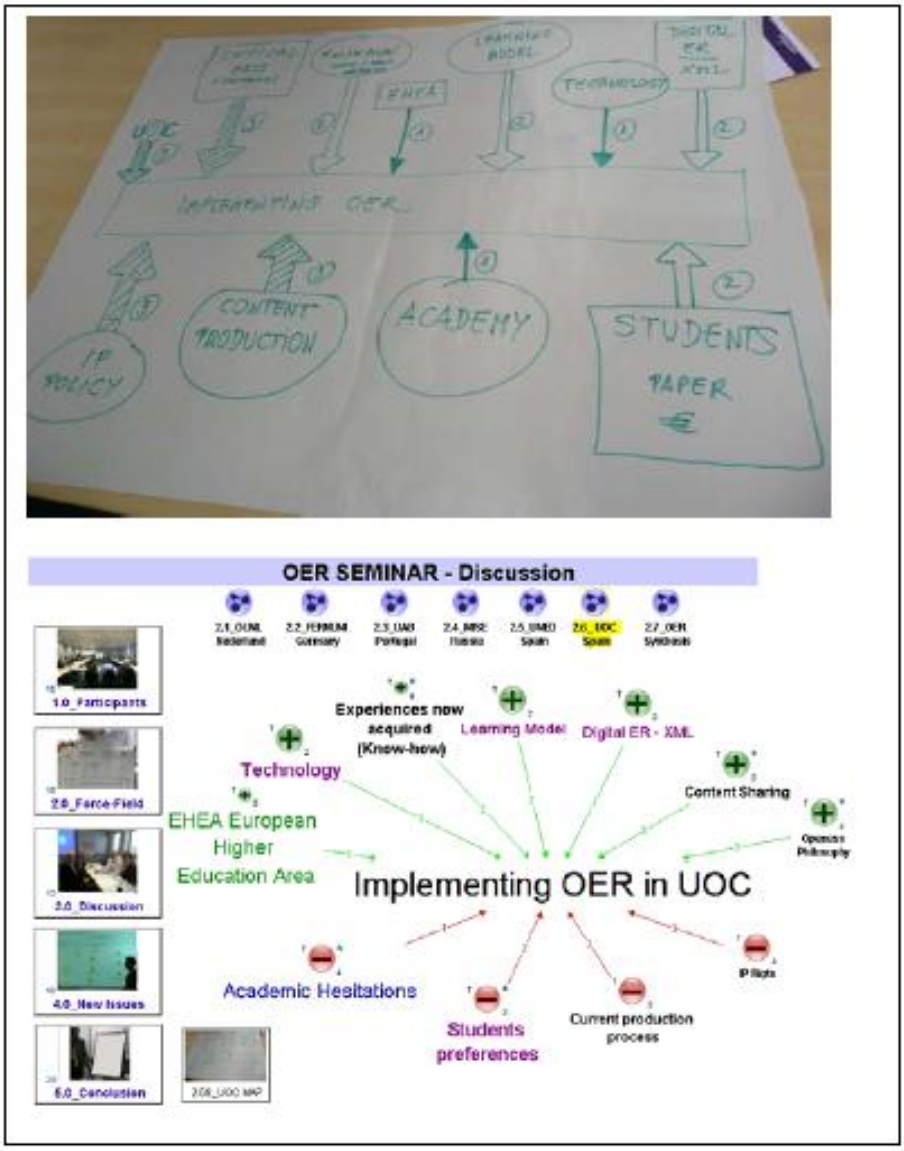

Figure 4: The original Open University of Catalonia paper-based map alongside the Compendium version[91]

Creating a collective synthesis and overview

As well as the individual institutional maps a synthesis map to capture the collective sense making between groups was also created. Initially this was drawn by the workshop facilitator on a flip chart in the presence of, and with contributions from, all the participants and both summarized the outcomes of the paper based-maps as well as the resultant discussions. Later, this paper-based map was re-created in Compendium (Figure 5) thus allowing for further enhancements made possible by the software tools. For instance, one of the advantages of using Compendium is that the software tool automatically registers the number of times that an icon appears in other maps and also in what map.

91 http://labspace.open.ac.uk/file.php/4341/kmap/1226932028/Seminar%201%20Knowledge%20map.html

This process of combining different group's overviews can be faster and more precise than compiling the information manually.

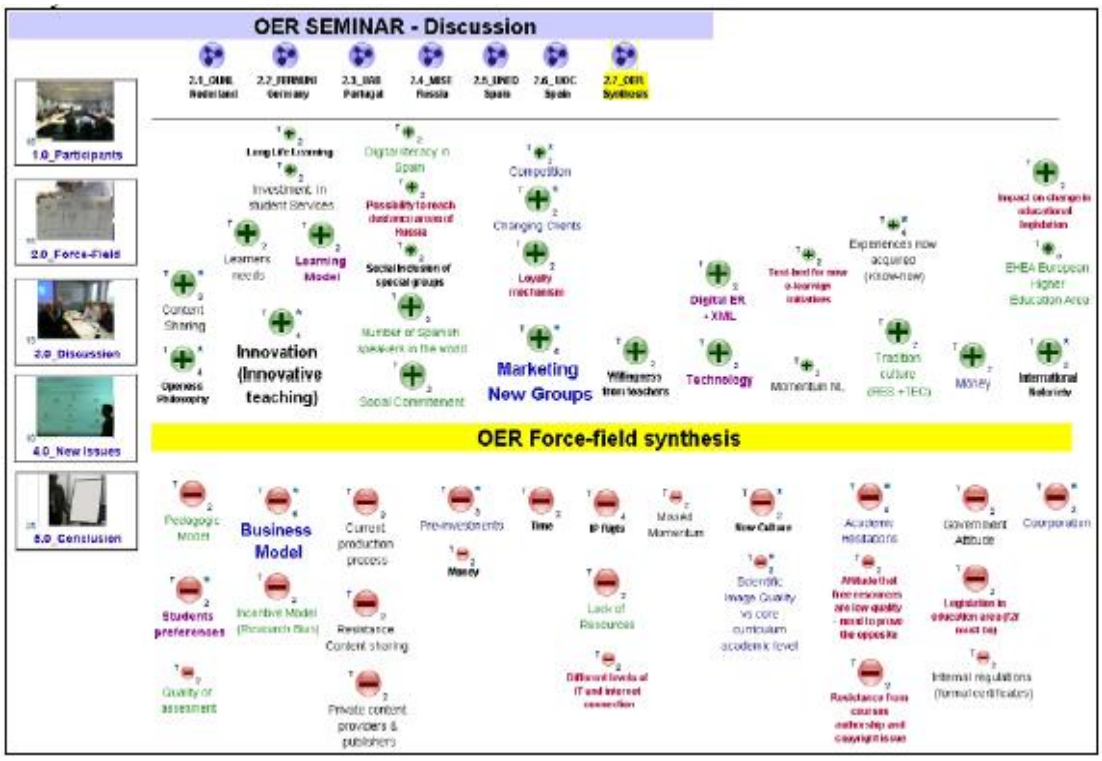

Figure 5: The Compendium based synthesis map of the forces driving and constraining institutions' OER implementation strategies[92]

The Compendium-based synthesis map shown in Figure 5 represents the thoughts of all the separate institutional contributions It indicates that Marketing, Innovation in Teaching and Business Models are the most common forces driving OER implementation, the first two as driving forces, the latter as a constraining force. It is also possible to identify other forces that support these major OER drivers, for example, that competition can often be behind marketing in order to reach new groups. This outcome fits in with other findings from the literature but it is still interesting to note that while there were these similarities between the views of the participants from the different institutions, there were many differences and particularities that related to the specific contexts and activities of the different institutions. While not unexpected, it highlights how important it is for institutions to work through their own strategies against their own priorities and use the structured findings and thoughts of others as guides for that consideration, and that visual mapping provides a useful technique for focussing and capturing this type of analysis.

However, to add to the collective analysis, after a consensus was reached for the most significant forces around OER production and use through the synthesis map, the MORIL participants, in six

92

http://labspace.open.ac.uk/file.php/4341/kmap/1226932028/Seminar%201%20Knowledge%20map.html

groups, started to discuss key issues and strategies related to these forces. This furthered the process of sense making in terms of combining and integrating the ideas of each group leading to a general overview of the project's aims: the determination of how OER can be developed and disseminated effectively and efficiently, building upon existing knowledge and experience. This was also manifested in the generation of three keys questions related to these aims:

1. What effects do OER have on our business models?
2. How do OER change our methods and models for teaching (and learning)?
3. What are the new markets and audiences made possible by OER?

And these have continued to be the questions guiding the work of EADTU around OER (Dorp and Lane, 2010).

Conclusions

Open educational resources are here to stay. The impacts they will have on educational systems is still unclear. For higher educational institutions there is growing evidence that publishing OER has promotional benefits in that the institutions gains a new and varied profile that influences students, prospective students and partners. It is also fostering collective and individual considerations about the teaching and learning policies and practices of those institutions. Appropriate and widespread business models for sustaining OER have yet to emerge but national and regional policy makers are beginning to acknowledge and fund the development and use of OER in the expectation that it will increase and improve educational systems they have responsibility for. The experiences of the MORIL project is that visual mapping can provide a valuable way for making sense of the strategic opportunities that OER might provide for an institution alone and collectively (Okada et al, 2010).

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Logutenkova, Tatyana : Multinational and National Approaches towards Language E-Learning

MESI

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Abstract

Learning a foreign language should also be penetrating into and acquiring knowledge about a foreign culture. It should be revealed through the same set of learning tools and instruments as learning materials but primarily through style and nationally specific manner of inputting language items and models. Multinational and national approaches were followed while creating the Russian language portal by MESI's team within the framework of the ELBEP project aimed at providing the target group (prison staff) with the convenient resource for learning Greek, Polish, Russian, Spanish and Turkish.

Introduction

In 2008 eight teams from Belgium, Germany, Greece, Poland, Russia (Moscow State University of Economics, Statistics and Informatics - MESI) and Turkey started their cooperation within ELBEP (Eliminating Language Barriers in European Prison through Open and Distance Technologies) Project aimed at creating language portals of Greek, Polish, Russian, Spanish and Turkish which would help prison staff acquire language skills to communicate with prisoners of different nationalities and hence to make the socialization and inclusion of the latter easier. Our mission was to provide the target group with the most convenient, easy and productive way of learning languages which dictates in its turn sophisticated and innovative techniques and methods of teaching.

The project was initiated by Anadolu University (Turkey) having achieved good results in distance and e-learning including teaching Turkish language through e-learning technologies. Taking into account the complexity of tasks to be fulfilled the project team was to meet a number of requirements, the most important were: vast experience in teaching languages, good expertise in computer and e-learning technologies, of no less importance was the readiness for innovation, flexibility and eagerness to develop our own skills and knowledge. As a result the choice of partners proved to be very successful. Linguapolis (Belgium) is widely known for its activity both in teaching more than 40 foreign languages to different groups of students and sharing their ideas and methods of teaching languages with professionals from other countries through seminars, sessions and special courses. Along with the development of distance learning Innowacja Foundation (Poland) is focused at propaganda of the Polish language and elaborating new ways of learning and teaching foreign languages. Our Greek partners are really professional in arranging distance learning,

including language learning and have done much in creating learning materials and tools for teaching Greek. MESI (Russia) is the leading university in Russia in introducing information technologies into teaching and learning and has developed its own approach to language teaching which has been tested for a number of years and demonstrates good results. MESI pays much attention to the development of platform-based e-learning, which allows arranging really helpful tutor's support for students. Our German colleagues (ESTA Bildungswerk E.V.– Training Provider and Dr. Wolfram Laaser an expert from Fern University) are great specialists in distance and e-learning. And really all of us would like to cope with the challenges of the project, to make a new step in our own expertise and acquire new experience. Our partners from EDEN and EADTU whose primary goal was to disseminate the results of the project also helped much to arrange fruitful cooperation within our multinational team. The complexity of tasks dictated strong coordination of efforts which was realized through meetings and extensive discussions arranged on a regular basis through chat-sessions as well as through careful assessment of portals. All partners contributed to creating national language projects and got help and assistance from each other.

During the kick-off meeting held in Turkey in January 2009 we not only determined the complexity of project's aims and tasks but also agreed on the perspectives of the further development of the project. The latter was really very important and at the very preliminary stage of the project we clearly understood that what we would do, the portals we were to create should foresee in their ideology and construction the possibility both for horizontal and vertical development. By horizontal development we mean attracting other target groups to language e-learning. While by vertical development we mean widening learning materials. Having started with creating A1 level language courses in accordance with ALTE Standards, we should bear in mind the possibility of creating language e-courses of a more advanced level or levels.

Teaching languages is one of the most ancient practices and in a highly integrated modern society it is extremely competitive. There exists a variety of approaches based on achievements of linguistics, psychology and other social sciences. In the era of information technologies there appeared a number of computer programs aimed at stimulating the interest to learning foreign languages and making this learning easier and more pleasant. These programs are rather sophisticated and able to simulate real language communication (e.g. Second Life used as a learning environment). Hence, to offer something really innovative in this field has proved to be one of the most critical challenges of the ELBEP project.

Our Turkish partners believed that the portal of Turkish which had already been created and thoroughly probed was to be taken as a model for the other language portals. Striking differences between the languages – Turkish, Polish, Greek, Russian and Spanish – turned out to be the first obstacle for the uniform approach. The differences are both semantic and structural. The structural differences – a different set of grammatical categories for a noun or verb, a different sentence composition, etc. – may be overcome and in fact neglected while creating an A1 level of the language course which is aimed at presenting and learning whole phases rather than synthesizing individually needed patterns. The semantic differences can hardly be neglected even at the very simple stage of language communication. The semantic differences are illustrated by a different splitting, reflection and interpretation of objective reality in different languages. Thus for instance,

the meaning of the Russian word «рука» corresponds to the meanings of no less than two English words «hand» and «arm».

The languages were chosen for the project not on the basis of their structural and semantic similarity but because of the needs of our target group – prison staff of European prisons. The questionnaire offered to them by our partners in Belgium, Greece and Germany showed their interest in learning Russian, Spanish, Turkish, Polish and Greek. The rating of languages was as they are enumerated above partly because of the interest for the country itself not because of the corresponding number of prisoners, the item that was not investigated by the partners. During the pilot application of the portals being the conclusive stage of the ELBEP project and held from July 1 till the end of September 2009 this rating was corrected and the number of applicants for the Spanish course was much larger (more than 100 people) than for the Russian course (46 applicants) which took the second line.

So, the choice of languages was determined by social considerations primarily. That is why the semantic difference between the languages started to ruin the uniform approach from the very beginning. Thus, the Turkish greeting «Merhaba» corresponds to no less than two Russian words «привет» and «здравствуйте», which are used depending on the social status of people communicating with each other. The marital status of people in Russian is described by two words «женат» and «замужем» depending of the sex differences while in Spanish and Turkish only one word is used in this case: 'casado' (Spanish) and 'evli' (Turkish) semantically equal to 'married' (English). This list of semantic differences is truly endless.

In teaching languages there have been formulated some truths which may be referred as self evident truths as they are accepted unanimously by all professional teachers of languages. One of these truths is that language learning is necessarily combined with learning another culture, national peculiarities of people's life, ideas and understanding. Having analyzed the Turkish portal we came to the conclusion that this national component was evident and realized through a whole number of items: bright national landscape in videos, ethnic Turkish authenticity of characters participated in Flash-presentations and videos, etc. It became obvious that it would be impossible to transform the Turkish portal into a portal of another language without deep and drastic modification of learning tools.

However, a uniform approach to the portals turned out to be impossible not only because of evident structural and semantic differences between the languages and different partners' experience or technical expertise but also because of differences in national approaches to teaching languages. This is revealed through style and nationally specific manner of inputting language items and models but is primarily seen in the attitude to the choice of language items and models. To begin with there is no ALTE Standard of Russian and we base our course on the National Standard of the Russian Language. The difference between these two standards is not only formal: ALTE Standards deal with 6 levels of language competence, while our National Standard differentiates between only four. The difference between the standards is actually the difference in approaches and understanding how to teach languages. ALTE standards are elaborate system of language items and models specified depending on the level of language skills. National standard of the Russian language if more flexible

and while teaching a foreign language even at the first level of language competence we do not deal with a clear cut and defined in details strata of the Russian language. The National Standard of Russian is formulated as a description of skills and knowledge and hence is more individual depending. This approach is reflected in our anthropocentric hierarchical model of teaching foreign languages which has been carried out by the staff of the Department of Modern Foreign Languages of MESI (Tver Branch).

This model is anthropocentric because starting any language course development we first and foremost find out the aims and preferences of our students (the target group) bearing in mind that language is an inexhaustible system of means to be used in different types and situations of communication. Surely, first of all this inexhaustibility concerns lexis being an open system, but depending on the situation of communication grammatical and syntactic patterns can be also specific. For example, in scientific discourse in Russian the verbal paradigm may be reduced, as first person singular forms of verbs are used but rarely and instead of writing «I came to the conclusion that…» we should express the same idea by a different wording, which is similar to «We came to the conclusion that…», and it does not mean that I was not alone in my conclusions. Even at the elementary level of language competence we may find some specific in grammar and syntax. Teaching whole phrases used in a certain communication situation it is not necessary to present all the forms of the verbal paradigm or of the noun declension and taking this into account we may limit the language material to be taught.[93] Actually, any language can be characterized with a number of peculiarities depending on the sphere and style of communication. That is why finding out in what situations or spheres of communication our student is going to communicate we determine also the language items, patterns, forms and structures to be taught. This leads to one of the basic principles of our model – the language input is specific for any student and depends on his/her preferences, interests, professional skills, age, sex, etc., and in this sense the model is anthropocentric.

Anthropocentric character of the model is also dictated by the necessity to take into consideration the differences between the native language of a student and a foreign language he/she is learning. Both languages a native and a foreign may be of a similar structure and possess an essential part of cognate words, grammatical categories and syntactic patterns. In this case while teaching a foreign language we would operate with references to these similarities thus facilitating the process of apprehending another language items and structures. We act differently when the languages both native and foreign have less similar features. More than that not only differences between languages are important but also differences in mentality, nationally habitual ways of learning and teaching, etc. First these differences should be found and then we should carry out special ways and methods of teaching so that the differences in ethnic mentality and national habits do not prevent from successful leaning.

[93] The same limitative approach was followed by American linguists while creating the so-called BASIC (British – American – Simple – International – Commercial) variant of English in the middle of the 20-th century. This variant being a simplification of the English language was intended to become a means of international communication.

Our model for teaching a foreign language is hierarchical because it presupposes splitting language resources to be taught into three stages or sets of communicative situations. The first set is the so-called basic course which includes language items and patterns for everyday colloquial situations, the second is a course of business communication and the last comprises professional situations of communication. The model is hierarchical in the sense that these three stages may be taught one after another forming a sequence of acquired language skills, when every next skill is based on the previous one. As a matter of fact the mentioned above sequence is not necessary to follow in the process of teaching languages as much depends on the needs and preferences of the students.

However, we understand that every approach has its own pluses and minuses. We appreciate greatly the achievements of our European colleagues in testing language skills acquired by a student. A relatively standardized language material simplifies testing as compared with not clearly defined part of the language system, as usually it is to a larger extent individual set of language items and patterns. More than that, the differences between approaches of ALTE and National Standard of Russian are not as striking as it may seem. Surely, ALTE Standards at a more advanced level of language competence (starting with B and further) are oriented at description of skills rather than enumeration of language items included. In Russia while teaching a foreign language we also offer our students lists of language items both lexical and grammatical. Thanks to our participation in ELBEP project we have not only got a possibility to examine and analyze the differences in approaches but also learned new experience from our European partners.

To sum up all the difficulties we faced with starting to work out national language portals within ELBEP project we may state that nationally specific input of a foreign language material depends on a number of objective and subjective factors.

Among objective factors there are:

- different language structure and semantics;
- extent of difference both in structure and semantics between a native language of a student and a foreign language he/she is learning.

Among subjective factors there are:

- national mentality;
- nationally specific methods of teaching languages;
- nationally specific methods of learning languages.

Trying to realize the original idea of the ELBEP project to create a set of language portals following a uniform approach on the basis of the Turkish portal we faced with a difficulty to combine national and universal approaches. After several months of hot discussions we met in Hagen (Germany) in July 2009 to make conclusions and to find the best solution to the problem.

In fact all member teams were to make a choice between two ideologies of further cooperation and development of the project itself. One of them may be referred to as a concept of a multi-language portal and the other is actually a set of language portals.

The Russian team insisted on the idea of a multi-language portal which seemed us to be naturally dictated by the needs of the target group – prison staff of European prisons. Analyzing the needs of the target group we came to the understanding of the very essence of the project when the prison staff should be offered not to choose between the language portals and to learn one language (or two, three, etc. languages if he/she wishes) but to learn elementary courses of all five languages. This conclusion is obvious if we take into account professional responsibilities of our target group. One and the same member of the prison staff should communicate with prisoners of various nationalities and he/she is interested in learning all five (may be even more) languages. This statement made some corrections in the future development of the ELBEP project which we had already discussed during the kick-off meeting. If the horizontal development of the project was seen as quite natural and perspective then the so-called vertical development should be treated as a new project with the necessity to solve all the problems both technical and content from a scratch, as in fact there would not be a continuation of the portal but we should create a number of multi-language portals of different levels but with a similar design and a set of learning tools. This conclusion is based on the assumption that a multi-language portal of a more advanced level of language competence will demand different approaches to compiling the content and raise many more problems with differences in semantics and structure.

We see a multi-language portal as an instrument of convenient and easy learning elementary (A1 Level) courses of Greek, Polish, Russian, Spanish and Turkish. To develop this instrument it is necessary to work hard to adapt language items and patterns. For this sort of adaptation it is preferable to have a certain starting point, a basis and the Turkish portal could be naturally taken as a basis being almost ready made. Surely, this basis should also be modified as no one language can serve as a model and adaptation is understood as a series of compromises and changes.

The creation of a multi-language portal is a real challenge to be compared with compiling a multi-language dictionary which may be successful only on a clearly limited part of language lexis for special purposes (e.g. terminology of a certain science). The most important problem is semantic differences which have been already mentioned above. To create a multi-language portal the language adaptation – creation of as much as possible equivalent texts in different languages - should be made carefully step by step. All partner teams should not only adapt their languages to a Turkish one but also do a cross adaptation with all the other languages in the project. We should agree on all deviations from the basis if they are necessary from the point of view of language structure and semantics. Below there is a fragment of the first unit with notes. These notes are divided into two groups: the first are intended for programmers and technicians who are to create multimedia means and tools, while the second (in italics) illustrate the results of language adaptation and they are additions or omissions and other changes determined by the structure and lexical system of the Russian language.

Урок 1. (*Unit 1)*.

ПРИВЕТСТВИЯ (*GREETINGS*)

Здравствуйте – официальное приветствие (*official greeting*)

Привет – неофициальное приветствие (*unofficial greeting*)

Официальные приветствия в разное время суток: (*Official greetings in any time of the day*)

This part of language learning materials is different from the Turkish part where only one greeting «Merhaba» is introduced. That is why it is necessary to give some extralinguistic comments to differentiate two greetings existed in Russian. «Здравствуйте» is more or less similar to the English «How do you do», while «Привет» corresponds to a number of English non-formal greetings such as «Hallo» and «Hi». Because of the multinational team of the ELBEP project while communicating with each other we speak an intermediary language, in the majority of cases we speak English. Adding one more language to the process of adaptation as only in English we may explain each other what modifications we do with the text makes our work even more complicated.

1) Иван: Доброе утро, Дмитрий Утро (*Morning*)

Дмитрий: Доброе утро, Иван

(*Ivan: Good morning, Dmitry.*

Dmitry: Good morning, Ivan.)

2) Василий: Добрый день, Николай День (*Afternoon*)

Николай: Добрый день, Василий

(Vasily: Good afternoon, Nickolay.

Nickolay: Good afternoon, Vasily).

3) Наташа: Добрый вечер, Петр Вечер *(Evening)*

Петр: Добрый вечер, Наташа

(Natasha: Good evening, Pyotr.

Pyotr: Good evening, Pyotr.)

This part of the text is actually a word-by-word translation from Turkish. This is a rare case of coincidences between Turkish and Russian. However, that does not mean that translation into another language (Greek, Polish or Spanish) would be also equivalent.

Пожелание на ночь (*A wish to spend night well*).

4) Егор: Спокойной ночи, Тина Ночь *(Night)*

Тина: Спокойной ночи, Егор

(*Yegor: Good night, sleep well, Tina.*

Tina: Good night, sleep well, Yegor.)

This part of the text is a necessary addition to the text in Turkish, as the more or less adequate phrase in Russian is not a greeting in the proper sense of the word but it is a kind of a wish to a person to spend night well (compare with the English «Sleep well»).

Графика: циферблат с указанием времени.

1) 9.30
2) 12.00
3) 19.30
4) 22.30

Сценарий для видео:

Количество участников: 8 человек

1) Встреча на улице двух молодых людей. Они идут друг другу навстречу. Встречаются и приветствуют друг друга. Светит солнце. Хорошо бы где-нибудь под часами или на фоне часов.
2) Встреча на работе. Двое молодых людей. Один из них находится в офисе (стоит около принтера, например), другой входит в офис, в руках у него бумаги. Они приветствуют друг друга.
3) Встреча в кафе. За столиком в кафе сидит Петр. Наташа подходит к столику в кафе. Петр встает. Они приветствуют друг друга.
4) Дома, ложатся спать. Тина уже лежит на кровати. На ней ночная рубашка, она укрыта одеялом. Егор подходит к кровати в пижаме. Откидывает край одеяла. Они желают друг другу спокойной ночи.

(*A set of pictures with a clock showing different time of the day.*

5) 9.30
6) 12.00
7) 19.30
8) 22.30

Video scenario:

Number of actors: 8 people.

1) Two young men meet each other in the street. First they towards each other. When they come nearer they greet each other. The sun is shining. It will be a good idea to arrange this meeting with the clock which can be seen.

2) *Meeting in the office. There are two young men. They meet each other in the office. One of them is standing near a printer, for example. The other man enters the office, he holds some papers in his hands. They greet each other.*
3) *Meeting in the cafe. Pyotr is sitting at the table. Natasha comes to the table and Pyotr stands up. They greet each other.*
4) *At home at night. Tina is on the bed. She wears night clothes. Yegor comes to the bed. He wears pajama, He is ready to lie on the bed. They wish each good night and good dreams.*)

These are notes and instructions for programmers how to make a video and Flash-presentation for the unit. We call these instructions scenarios which they actually are.

This short extract (a smaller part of the first unit) illustrates how scrupulous our efforts to adapt the texts and how large the scope of work should be. As for lexis the adaptation results in: additions and omissions; on the grammar level it results in: successive substitution of grammar categories and syntactic patterns if possible; additions and omissions of grammatical forms and categories and syntactic patterns if substitution is not possible. Adaptation should be made only for the text of units while exercises are made for each language specifically and aim at what they are to train.

Scenarios for video turned out to be another portion of modification to be made with the basis portal, Turkish in our case. The function of video is to demonstrate how language items and patterns are used in circumstances of everyday communication. Following the multinational approach it is necessary to have the so-called international video in which national elements and features of a specific culture should be avoided. We have already mentioned above that details of national culture seen in Turkish videos made them extremely difficult if not impossible to be used in other language portals. Hence, videos should be remade. During our meeting in Hagen all the partners participating in hot discussion carried out a number of requirements for what we call international video. If we hope to use the same videos to illustrate patterns in different languages it is desirable to avoid taking a close-up of people because articulation is different with different languages and the original articulation of actors may lead to misunderstanding. The scenery should be also nationally neutral.

The same considerations are important for Flash-presentations of units. They should also be neutral from the point of view of national peculiarities.

In fact insisting on nationally neutral learning materials our Russian team was against the most widely accepted by professional teachers of languages view – to introduce both language and culture specific while teaching languages. However, the anthropocentric model of teaching a foreign language states that the needs of the target group are more important than any generally accepted ideas. We were thinking to provide prison staff with a resource for learning a number of languages at A1 level to facilitate their communication with prisoners of various nationalities. If a member of the target group is interested in learning another level of this or that language he/she will apply for a different course of language, made in compliance with another set of needs and wishes of students. We have to agree that living in a highly integrated world, crossing geographical borders so easily and sometimes cancelling any borders at all we need different approaches to teaching languages. These

different approaches are dictated by students' needs and preferences depending on their goals, time limits, etc. These different approaches do not mean neglecting national specific of another language culture but are focused on different items and are connected with a different arrangement of language input.

The concept of a multi-language portal offered by the Russian team needed many efforts from the partners and extremely helpful and close cooperation. Though our partners highly appreciated the concept itself still it was adopted only partly. There were doubts about some rather principal statement of the concept and we had to agree that it would take quite a time to work out details of the theory. Dr. Wolfram Laaser offered to be realistic and all teams agreed on necessity to combine both universal (multinational) and national approaches towards creating language portals. In fact all language portals should have certain features in common and still be made on the basis of partners' specific experience and expertise.

As for the common features they are:

- all five portals should be A1 level course of a language,
- the course should consist of 10-12 units,
- while creating language portals we should follow the structure of the Turkish portal, that is to include the same set of learning tools,
- input of new language items and patterns should be realized with a monolingual mode, that is without an intermediary language,
- professional lexis of the target group should be included into the units or added as a separate vocabulary.

As for the nationally specific approach all partners were welcome to follow it to any extent which was in accordance with the concept of their language portals. In other words all partners agreed to create a set of language portals but to preserve the ideas of the Turkish portal as the basic ones. We highly respect professionalism of our Turkish colleagues who were ready to make all changes needed to make their portal better.

Now rethinking the ELBEP project which was completed in December 2009 we may state that friendly cooperation and relative freedom to introduce any ideas we wish stimulated our creativity, allowed us to acquire new knowledge and experience and, hence, contributed to the success of the project.

MESI's group started to develop the portal of the Russian language in accordance with the requirements carried out by all the partners of the ELBEP project but still trying to implement the concept of a multi-language portal.

The Russian language portal development started from a scratch. The whole technology is based on MESI's vast experience in IT, distance and e-learning. The structure of the e-course of Russian for beginners includes Introduction and 6 parts divided into 13 units. Each part is provided with a number of learning tools the access to which for a student is arranged in a multi-way mode through the visualized icons or the line bar menu.

Fig.1. This is a page of the Russian e-portal.
The left vertical menu presents the structure of the course. The bottom line consists of a number of icons allowing access to learning tools.

The portal of Russian is done with a multi-language interface. The structure of the course, the tasks for the exercises are offered in Russian, English, German, French, Dutch and Greek, the languages native or known to the target group of students of the ELBEP Project.

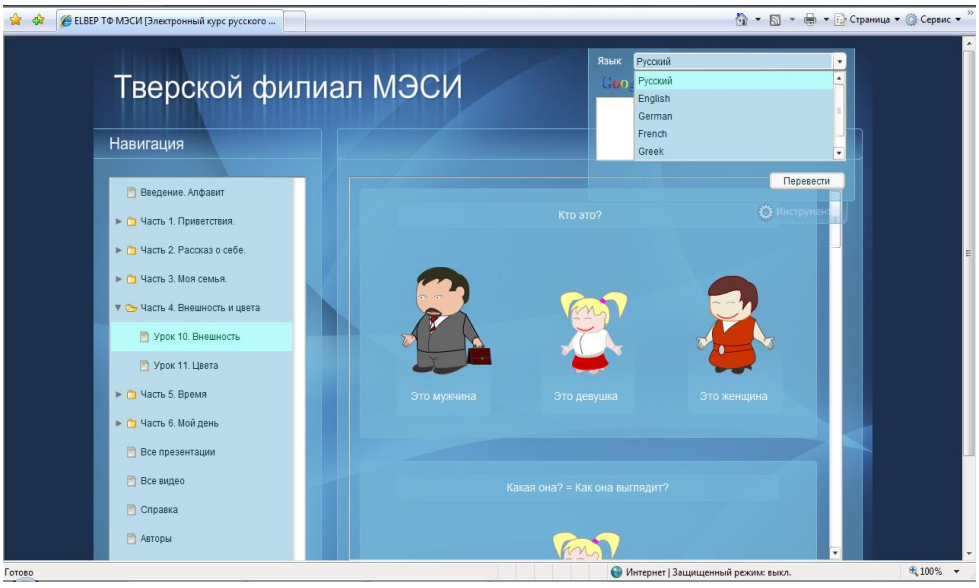

Fig.2. To switch to instructions in another language a student should press a button in the top right corner of the page.

The same multi-language approach is applied to the Homepage of MESI offering all the necessary help and instructions to the students in their native languages.

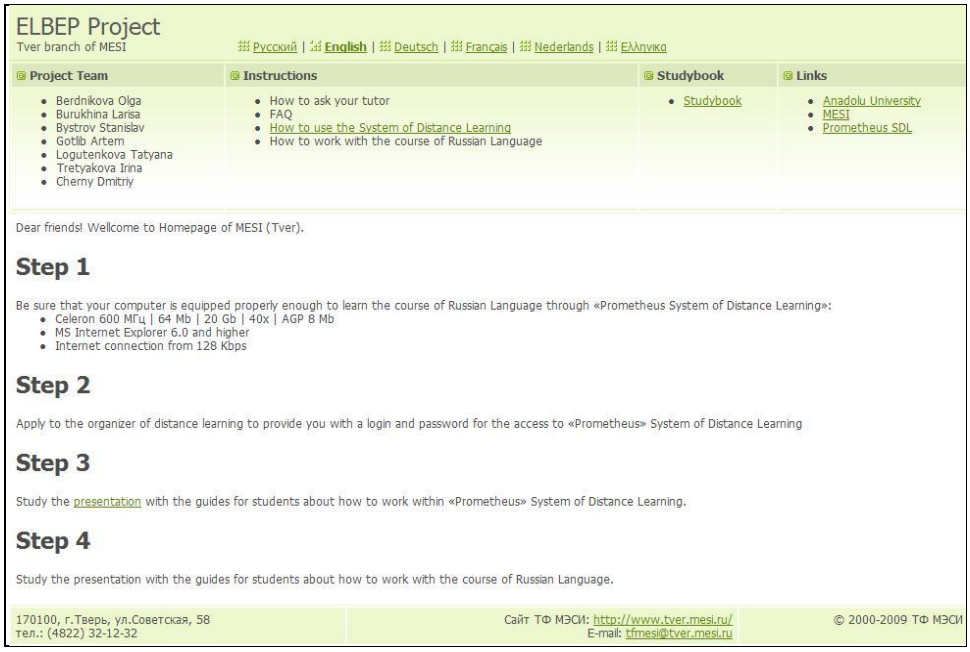

Fig.3. This is a print screen of the Homepage of MESI.

The interface of the page given above is in English, but pressing different languages in the line menu at the top of the page a student may switch into another language version of the interface.

The portal of the Russian language is placed in Prometheus System of Distance Learning which offers a number of learning functions, they are self-training and tests. Prometheus SDL provides forums, file-exchange, chat sessions to arrange tutor's support. All these functions and e-mails were used to consult students during the pilot application of the project. Further there is a print screen of the page of Prometheus System of Distance Learning, which is one of the educational platforms used for e-learning arrangement in MESI.

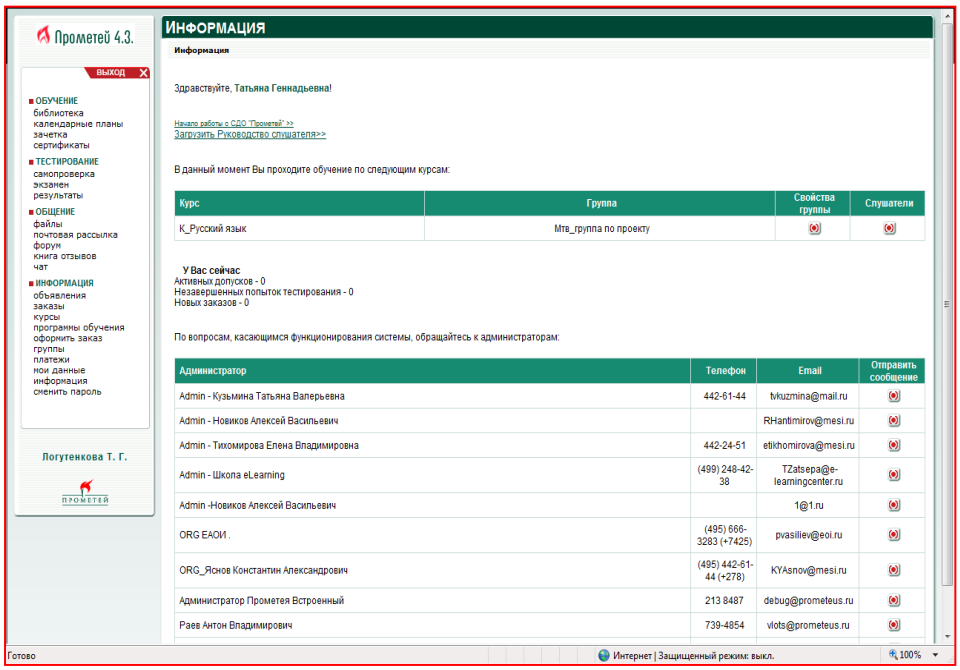

Fig. 4. In the left bar menu there are functions to be used for interaction between a student and a tutor.

It goes without saying that e-learning is more successful if it is arranged on a platform allowing a number of means of interaction between a student and a tutor. While learning languages tutor's support is of even more importance than while studying a science. But placing the e-course of Russian in the educational platform caused a whole set of problems connected with the necessity to teach our target group to navigate through the platform. Usually to start e-learning the students of MESI study a special course - «A Student in E-Learning Environment» - aimed at teaching them to use the functionality of educational platforms and properly cooperate with a tutor while learning. This course has been included into the academic curricular for a number of years already and has proved to be of great importance to make e-learning effective. To overcome ELBEP pilot students' illiteracy in e-learning technologies we had to create an information portal containing all the necessary instructions and information about how to work within Prometheus System of Distance Learning and how to learn the Russian language with the e-portal.

Language portal development was divided into several stages. First we carried out a theoretical basis for our portal being convinced that strong and non-contradictory theory is necessary for our efforts to be a success. The first step was made when we put forward the concept of a multi-language portal. Then bearing in mind the complexity of language e-learning we carried out an approach which we call prospective interactivity. Prospective interactivity demands to foresee at the stage of developing the portal all the difficulties and questions our future students will have and hence to prepare answers to these questions and solutions of the students' technical and learning problems. Being connected with the monolingual way of presenting language items and patterns prospective interactivity also requires the largest extent of visualization94 of not only lingual meaning (which is the first by its importance) but also the navigation of the student in the course of Russian. Starting to work with this or that element of the course we try to imagine ourselves to be foreigners knowing nothing about Russian reality, Russian alphabet, Russian mentality, etc. We also asked foreign students getting higher education in MESI to be experts and decide whether the visual means we offer are understandable or not.

The technical staff of MESI created a number of learning tools the combination of which produces the structure of the portal and the arrangement of language e-learning. Developing the learning tools we took into consideration the experience of our Turkish colleagues and their e-portal of Turkish. The learning tools which form both the structure of the Russian portal and language e-learning are as follows:

- Flash-animations.
- Print materials (both Flash- and PDF-formats).
- Exercises.

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[94] For more details about visualization means we used in the portal see Logutenkova T. Visualization in the multimedia course of Russian (MESI participating in ELBEP project) // ΠΡΑΚΤΙΚΑ PROCEEDINGS. ICODL 2009. Open and Distance Learning for Global Collaboration and Educational Development. 5-th International Conference in Open and Distance Learning, 27-29 November, 2009. Athens, Greece. P. 276-284. **http://artemis.eap.gr/icodl2009/ICODL_5/My%20Webs/index.htm**

- Videos.
- Tests.

The first four tools are the structural parts of the language portal, while the fifth is done in Prometheus SDL.

The main character of Flash-animations is a «teaching/learning object» (as we call it) possessing some essential features similar to a human being. We have chosen a really symbolic conventional object different from a real human being first because of technical considerations. But this object turns out to be a really good choice as its conventionality and brightness help to focus student's attention on learning much better. This object is also neutral from the point of view of its nationality because nationality can hardly be found in its conventional appearance. This «teaching/learning object» is used in various functions. It demonstrates essential characteristics of a human being. It supervises the process of learning being a substitute for a teacher, it points at objects of reality, pictures helping to form each page of the course, etc. It or rather they (as we may modify it and produce an endless number of these objects depending on what features of their appearance we are focused at) participate in dialogues and pronounce monologues. In Fig.5-7 there are the samples of learning/teaching objects used in different functions:

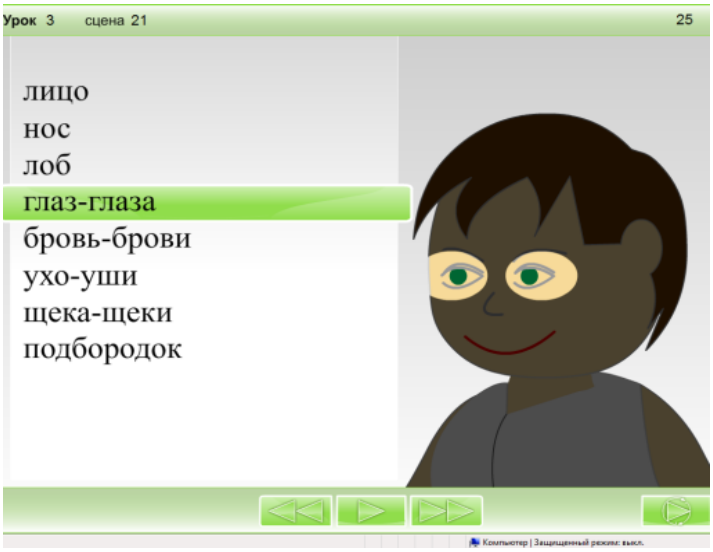

Fig. 5. A learning/teaching object demonstrates similarities with a human being.

Fig.6. A learning/teaching object is a tutor pronouncing a monologue the content of which is illustrated by the learning/teaching objects participating as actors.

Fig. 7. Learning/teaching objects demonstrating sex, age differences and how different people may be in their appearance and complexion.

Unit 8 of the Russian course is devoted to describing nationalities which are visualized through the pictures of national attributes (flags and emblems) and specific clothes known to almost everyone in the world and hence easily identified as the national costume.

Fig.8. A combination of national flags and some elements of costumes aims at visualizing meanings of words denoting nationalities.

As for videos while making them we try to meet the requirements carried out by all the partners for the so-called international video. The scenery should not show signs and features of the Russian culture.

Fig. 9. A fragment of video in which the scenery is neutralized from the point of view of nationally specific features.

Surely, the portal of the Russian language cannot be seen as absolutely nationally neutral. We still preserve our nationally specific views about teaching a foreign language, input of language items and patterns. However, we also made every possible effort to follow the multinational approach. As a result of multinational approach the portal of the Russian language will be easily transformed into a portal of a different language. Due to participation in ELBEP project we have acquired a vaster experience in language course development which will be applied in our teaching practice.

We are much grateful to all the partners who took part in the ELBEP project for their friendly attitude and cooperation. For a couple of years we have been working as closely united team irrespective of different languages we speak and different mentality and experience we have got. We would like to express our sincere gratitude to the Turkish colleagues for initiating such an interesting project which aroused so many new ideas and plans to be realized in the nearest future.

Montandon, Lydia & Arjona, Mercedes: How to promote the adoption of an open framework to make Lifelong Learning accessible to all?

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Abstract

The EU4ALL mission is to support lifelong educational and training organisations in providing accessible e-services to their students and professionals, including aged and disabled students. Technology is playing an increasing role in mediating lifelong learning. However, if this technology is inappropriate and introduced with insufficient support, disabled people face even further exclusion from the interlinked worlds of education. The EU4ALL project develops a framework that supports numerous groups of potential users with different needs. The framework provides a set components and services to improve the accessibility of education and professional development training. However, the project now faces the challenges of the future adoption, use and exploitation of the EU4ALL outcomes. Most organisations in the sector are not yet ready to offer accessible education to their students and to implement part or the whole framework. The readiness of institutions is not only related to technical aspects, but depends principally on social, political, organisational and management issues. EU4ALL problem is that it offers technical innovation to address a social problem. A social innovation perspective needs to be introduced to make sure that the EU4ALL outcomes have a chance to be adopted. This paper explores the ways to disseminate and exploit the results of the project based on Rogers *Diffusion of Innovation* principles and from a social innovation perspective. The conclusions indicate that it is important to outline a strategy to approach organisations taking advantage of their potential for adoption and offer a progressive and modular implementation of the solution, depending institutions accessibility preparedness.

Introduction

EU4ALL[95] (European Unified Approach for Lifelong Learning) is a Sixth Framework Programme Research and Development Integrated Project partially funded by the European Union. Its mission is to support lifelong educational and training organisations in providing accessible e-services to their students and professionals, including aged and disabled students.

Nowadays, all citizens need ongoing (lifelong) access to learning to be able to keep their employment or find appropriate jobs. Technology is playing an increasing role in mediating this learning, as distance and online learning reduce time and distance barriers. However, if this technology is inappropriate and introduced with insufficient support, disabled people or people with special needs will face even further exclusion from the interlinked worlds of education and work. Technology (or the lack of appropriate tools) has therefore an impact on the access to lifelong learning. It means that higher education or adult education organisations may not be able to provide lifelong learning services to all citizens, thus contributing to the divide.

The solution should therefore focus on enhancing technology that mediates and delivers lifelong learning whilst accommodating the diversity of ways people interact with technology. EU4ALL idea is to propose a set of components and services that enable institutions dedicated to the provision of lifelong learning programmes to offer services accessible or adapted to all categories of adult learners. The aim is to integrate the EU4ALL components and services in a more general framework, offering tools and guidance that enable users and providers to deploy an accessible learning environment.

Two broad user groups will benefit from the EU4ALL project outcomes. On the one hand, the learning environment provides accessibility support services and tools to end-users, including adult learners with disabilities, teachers, tutors, and disability staff. On the other hand, the project provides tools and guidelines to system-users, such as providers of eLearning systems, content and services for disabled, enabling them to offer accessible systems and services.

Based on extensive user needs elicitation, as well as existing services analysis, the EU4ALL project has designed and developed a set of components and services that supports accessible lifelong learning in the context of higher education. The components and services, as well as third party authoring tools, are integrated in an open architecture, which, in turn, can easily be integrated in existing learning environments (actually with Moodle[96], .LRN[97] and SAKAI[98]).

[95] www.eu4all-project.eu

[96] www.moodle.org

[97] www.dotlrn.org

[98] www.sakaiproject.org

From the very beginning of the learning process, individual needs of potential students are thoroughly identified by means of the services integrated in the learning environment. These particular needs can then be addressed by solving issues that are hindering the individual access to learning content or support. For instance, this can be solved by adapting learning content to make it accessible to a particular impairment or learning difficulty.

The EU4ALL prototypes are now running and are being integrated in four different settings for the launch of large scale pilots. Two major distance training universities (Universidad Nacional de Educación a Distancia[99] in Spain and the Open University[100] in the UK) will evaluate the developed system with disability professionals, course developers, tutors and students, including disabled students in various categories (visual, hearing and physical impairments, such as specific learning disabilities - particularly dyslexic and dyscalculia and general cognitive impairments, allowing to attend higher education level).

Additionally, two smaller educational institutions who were not involved in the user needs elicitation and technology development (Polytechnic University of Valencia[101] in Spain and Polytechnic Institute of Leiria[102] in Portugal) will implement the framework and evaluate it with their staff and students, including disabled students.

However, the project faces now new challenges, which are the future adoption, use and exploitation of the EU4ALL outcomes. Effectively, the market study realised in the context of the project (Weiermair et al., 2010) reveals that most organisations in the sector are not yet ready to offer accessible education to their students and to implement part or the whole framework. The readiness of institutions is not only related to technical aspects, but depends principally on social, political, organisational and management issues.

This paper explores the ways to use and exploit the results of the project based on the *Diffusion of Innovation* principles (Rogers, 2005) and a categorisation of potential adopters (Weiermair et al., 2010) considering their level of accessibility adoption preparedness.

Structure of the paper

The paper is structured in the following way. The fist part analyses aspects of the *Diffusion of Innovation* theory and how it may apply to EU4ALL. Then, from a social innovation perspective, the conditions for the implementation of the EU4ALL approach are described and how this impacts on the exploitation of the project outcomes. The second part introduces the core aspects of the EU4ALL

[99] www.uned.es

[100] www.open.ac.uk

[101] www.upv.es

[102] www.ipleiria.pt

enterprise, including purpose, solution, market, diffusion channels, and finally, the proposed strategy for approaching potential adopters and for the implementation of the EU4ALL solution.

Diffusion of Innovation and Social Innovation models

The problem faced by the EU4ALL project is that it offers technical innovation to address a social problem. Consequently, as "social innovation refers to new ideas that work in meeting social goals" (Young Foundation, 2008), in addition to technology transfer, a social innovation perspective needs to be introduced to make sure that the EU4ALL outcomes have a chance to be adopted.

The idea of connecting the Diffusion of Innovation (DOI) and the Social innovation models emerges from the fact that the DOI is useful for the planning of the project diffusion activities but lacks of practical guidelines/references on how to identify the specific condition of an organisation with respect to EU4ALL results adoption. The social innovation perspective brings insight for the identification, analysis and classification of potential adopters and provides guidelines regarding how to approach the market and design an exploitation strategy.

The *Diffusion of Innovations* is a theory of how, why, and at what rate innovation is adopted by users, from finding about an innovation through its extensive use. Rogers (1962) defines diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system".

Rogers' Diffusion of innovations model helps identifying phases in the diffusion process that are useful for the planning of the correct set of marketing activities at the appropriate time (Provenmodels, 2010). This theory underlines the importance of differentiating customers/users segments (e.g. differentiate those *who know* from those who are still to be persuaded). It also helps in identifying target groups for communication purposes.

The success of a diffusion campaign depends on three different factors (Warford, 2005):

1) The knowledge of the nature of the innovation
2) The knowledge of the targeted adopters
3) The socio-organizational context

Additionally, it depends on the flow of information through various communication structures and channels.

Nature of Innovation

The EU4ALL outcomes present three kinds of innovations:

1) technological innovation
2) the so called "practice-based innovation" (guidelines, support materials)
3) organisational innovation or "principle-based innovation" (e.g. new approaches, new staff structures, to support disabled and elderly students)

Consequently, the EU4ALL innovation nature is complex. On the one hand, we should take advantage of the fact that, according to Rogers (1995), technological innovation, as well as practice-based innovation, which are easy to be employed, have the best chance of success. On the other hand, we should pay attention to the fact that idea- and principle-based innovations are the most difficult to implement.

Innovation decisions

The DOI theory points out that it is also important to know whether the innovation is of an optional (individual decision), collective (group decision), or authority (mandated) variety, and what kind of decision has more chances to succeed in a high rate of diffusion and adoption.

In the case of EU4ALL, the market study (Weiermair et al., 2010) shows that decisions are generally taken by management staff of Higher Education Institutions (HEI), although influenced by the whole value chain of stakeholders. The decision making process varies across institutions, but there is in general a key person or a group of persons in charge. This kind of decision process is considered favourable, as generally, although discussed by other authors, "mandated [authority] decisions are associated with a high rate of diffusion adoptions" (Provenmodels, 2010). Warford (2005) sustains that individual decisions are incomplete without recognising the impact of socio-organisational aspects (e.g. management level decisions). However, as highlighted in the market study report, it will be crucial to find, inform and persuade the right interlocutor/s.

Socio-organisational context

The legal and socio-economic framework is also a factor of influence, as well as the attitude of the institution to diversity. Actually, due to the changing political, social, technological and educational context regarding Students with Disabilities (SWD), institutions increase the need to "becoming a learning organisation by opening up to disability. Whatever the country and whatever the institution, the way in which disabled students are admitted depends on the attitude of the institution to diversity" (OECD, 2008). Opening up to needs of learners with disabilities is seen as a source of innovation and modernisation of HEI (OECD, 2008).

Consequently, it will be crucial to check the attitude and dimension of target adopters. If the contacted organisations are open to social changes, they might be more likely to adopt EU4ALL.

Targeted Adopters

The OECD study (2008) identifies the following drivers for institutional change:

1) legal and political frameworks regarding inclusion and (e-) accessibility
2) increasing numbers of SWD aiming at third level education
3) technological developments favouring the implementation of technology enhanced learning processes (e-learning) and their accessibility

We can observe that two of those drivers correspond to the factors identified by Warford (2005) as having an impact on the success of a dissemination campaign. The third driver, regarding technological developments is in line with one of the innovations of EU4ALL, i.e. the technological components, which is the kind of innovation with the more chances to succeed. Drivers one and two, related to the socio-organisational context can also be beneficial to the EU4ALL diffusion and adoption, in case they have positive impact on organisation's decisions.

Those drivers might influence the potential adoption of Accessible Lifelong Learning in general and of the EU4ALL approach in particular. Besides, all of these factors are demanding in terms of institutional change. Consequently, the project intends to carefully investigate the institutional conditions benefiting the implementation of the EU4ALL system.

Critics of the DOI model warn that it has limitations. It is not predictive and can therefore not provide reliable information as to how the EU4ALL idea and solution will do along time. As Warford (2005) remarks, "while the DIEM [Diffusion of Innovation in the Education Model] provides conceptual clarity to research on change in educational settings, its usefulness as a way to explain and predict the success or failure of educational innovations in attaining adoption remains to be verified."

Anyhow, while DOI identifies factors to take into account for the planning of diffusion activities from awareness to adoption (i.e. nature of innovation, target adopters, social system, communication channels), we need a model that helps us identifying the attitude towards EU4ALL innovation of the target adopters (e.g. HEI).

Social innovation process

In their study, Weiermair et al. (2010) have identified a list of indicators which influence the potential adoption and implementation of the EU4ALL solution or parts of it. They have established a typology of institutions based on four levels of institutional accessibility practice, which require different approaches in order to bring institutions to fulfil the conditions for the implementation of the EU4ALL solution:

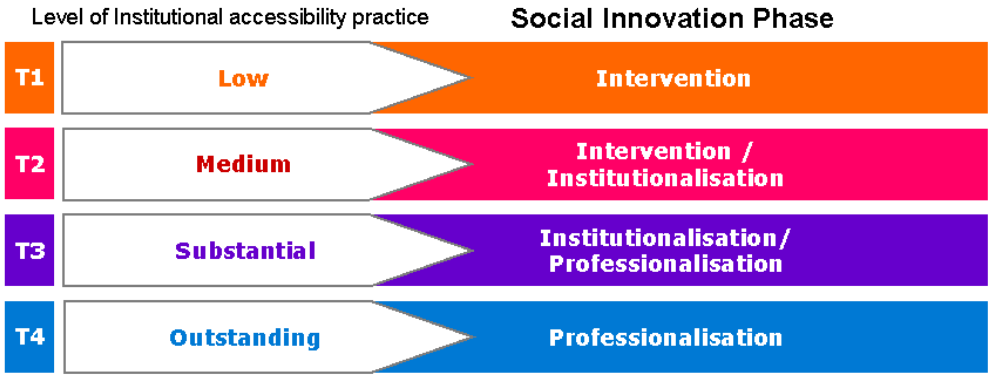

Figure 10: Social Innovation phases

As the implementation of the technological components (technological innovation of EU4ALL) necessitates a process of social innovation in an organisation referring to "innovative activities and services that are motivated by the goal of meeting a social need" (Mulgan, 2006) qualitative research was undertaken to be able to determine the conditions for the implementation of the EU4ALL system. Three main phases of implementation were detected and associated with levels of institutional accessibility practice. The phases intervention, institutionalisation and professionalisation and the related findings will be presented shortly:

- At type 1 (T1) institutions responsibilities and roles regarding the implementation of accessible services for students with disabilities are unclear. The personal and institutional level of awareness is low and so is the level of already existing services. These characteristics correlate with weak legal frameworks. The characteristics of T1 institutions correspond with the intervention phase in the process of social innovation such as informal networks, no political programs, provision of resources unclear, pilot projects and general ambivalence towards the new "ideas".

- In type 2 institutions with a medium level of institutional practice the awareness of management regarding accessibility is still low. Accessibility is clearly no priority on the institutions agenda. Although a considerable level of services for Students With Disabilities (SWD) exist, they depend on the conviction of a single person or a small team which means that existing practices are not institutionalised and ad-hoc solutions for ad-hoc problems are predominant. Again, these findings correlate with a weak national legal framework. Regarding the social innovation process these institutions are on the transition from intervention to institutionalisation. The latter gives way to cooperation, to defined roles and responsibilities as well as to formal networks. Communities of practice emerge in correspondence with expert knowledge. Resources are provided alongside with greater acceptance of the new practices.

- In type 3 institutions the responsibility of senior management for accessibility is well defined and roles are clearly set. Accessibility is high on the institutional agenda. Communities of practice exist with a high level of institutionalised processes and procedures. The national legal frameworks support the institutionalisation of accessible services through strong

requirements. This phase represents professionalisation. Routine occurs as well as professional roles and clear responsibilities. Political and legal structures are well established together with networks, teams of experts and practitioners. An institutional body of knowledge exists and benefits are evaluated. The main difference between type 3 and type 4 institutions is that accessibility is a high priority on the institutional agenda at T4.

These findings allow deriving conditions for the implementation of the EU4ALL system. The degree to which these conditions are fulfilled by institutions relates to the level of institutional preparedness to implement the EU4ALL system. The findings also support the development of different strategic options how to approach the different types of institutions to best support their needs and to successfully exploit EU4ALL outcomes.

Business model

The following sections describe the core aspects of the EU4ALL enterprise. The presentation of the value proposition is followed by a few words about the stakeholders and the intended enterprise structure. Information about the market and the socio-economical, legal and political context is then shortly presented, as well as the different channels for reaching potential adopters. Finally, the strategies to approach potential adopters and to implement the EU4ALL solution are shortly outlined.

EU4ALL value proposition

The EU4ALL approach enables Lifelong Learning providers to offer accessible educational services to all, including adult learners with disabilities or special learning needs. It does so by providing:

- Components and Services to support the enrolment of new disabled students (assistive technology, student guiding, support to staff), ePortfolio and Guidance4ALL
- Components and Services to support the adaptation of accessible content and content personalisation
- Consultancy in technical and organisational development

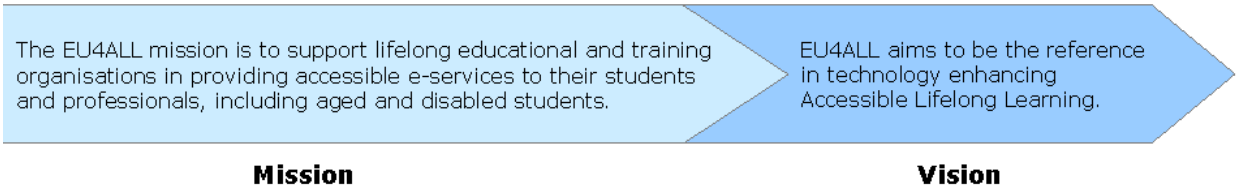

Figure 11: EU4ALL Mission and Vision

As mentioned previously, the EU4ALL approach and solution address a social issue. The technology developed by the project can not simply be acquired, installed and used. To benefit users (both adult learners and providers of adult education), organisational innovation must take place, which implies institutional change. Therefore, the project has come to the conclusion that an exploitation strategy

focused only on commercialisation could limit the adoption potential of EU4ALL outcomes. EU4ALL is thus orienting its exploitation approach towards social innovation ideas and strategies.

Consequently, the business model focuses on the potential benefits of a non-commercial exploitation that embraces technology transfer and social innovation development aspects. As suggested in the next paragraph, partners with different business orientations can find advantages and benefit from this kind of model (e.g. social corporate responsibility for companies, funding from inclusion programmes for social partners, etc.).

Partners and enterprise principles

The exploitation of the EU4ALL outcomes is of the interest of the entire EU4ALL consortium. Naturally, current project partners have different profiles and roles in the project. Therefore this is reflected in their position with regards to exploitation. The partners can be categorised as following, depending on their input in the project and the main activity they would carry out in the enterprise:

- Developers (technical consulting and implementation)
- Learning services providers (users, centre of excellence, communities of practices)
- Social sciences organisations (organisational consulting, research)
- Disseminators (promotion, valorisation, advertising)

A virtual network connects the different members of the partnership and allows collaboration across the different categories of activities. Besides, the partners are physically located in different countries. This facilitates the approach to local potential adopters, as direct contacts can be made in the UK, Spain, Austria, Germany, Italy, Portugal and Greece. So, for instance, if an institution is interested in providing accessible services to students, it would contact the EU4ALL organisation as a whole. The request would then be naturally oriented towards the social experts to carry out the first steps of the intervention phase.

Furthermore, most of the current partners have multiple resources and might contribute to various types of activities as well (e.g. dissemination and advertisement can be performed by almost all the partners). Additionally, it is not excluded that new partners and other stakeholder become part of the virtual enterprise. In the future, when demand rises, the plan is to form a centralised coordination team to carry out management and organisation tasks, such as monitoring the requests and distributing the tasks.

Solution (technical innovation)

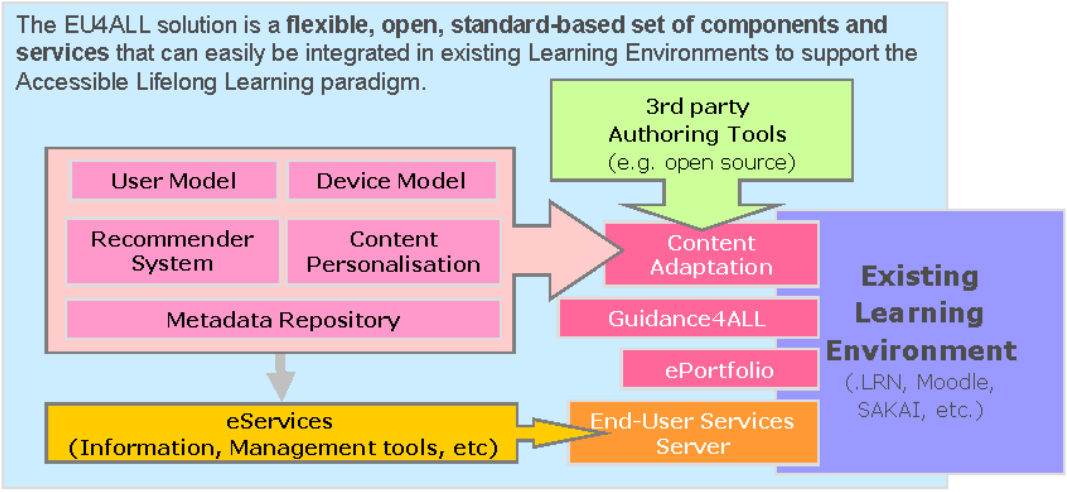

Figure 12: The EU4ALL solution

The following characteristics are the core competitive features of the EU4ALL solution:

- Open, non-proprietary architecture
- Extensible architecture
- Integration with existing LMS
- Reusable components (core/technical services)
- Service oriented architecture (SOA)
- Standard compliant (both educational and technological)

Market Segmentation

In principle, the EU4ALL outcomes are designed to address adult learning needs, in particular to enable adults to access lifelong learning. In the project, the adult learners market has been divided in two different market segments, on the one hand the higher education (or tertiary education[103]) sector, and on the other hand the non tertiary adult learning sector.

This split proved to be useful because these two spheres of education do not show many commonalities. While higher education (HE) lies in the centre of interest of EU4ALL, due to the fact that main partners/users in the project are universities, other organisations might also benefit from the EU4ALL framework. Of particular interest are the organisations aiming at attracting adult learners after compulsory education, i.e. adult education institutions, further education institutions, organisations that promote lifelong learning and informal learning. Sometimes those organisations

[103] "Tertiary education is education beyond secondary level provided by universities or equivalent institutions (such as professional schools, technical institutes or higher education colleges) which award academic diplomas or degrees." (Aceto, Delrio & Dondi, 2006).

work in collaboration, forming a network in which different capacities are represented (e.g. social partners frequently associated either with employee organisations and trade unions on the one hand and employers' organisations on the other hand).

However, at this stage the priority of EU4ALL is to focus on the HEI segment, leaving the approach of other organisations to a later stage of the enterprise plans. The authors of the *EU4ALL's Initial report on market for adult learners with special needs* conclude that "the legal instruments available make it mandatory for HEI to incorporate special needs into their accessibility plans. They have at their disposal under more or less clearly defined conditions, the human, technical and financial resources to provide the disabled with physical, psychological and learning-related access." (Weiermair et al., 2007).

Consequently, the EU4ALL main target market segment for exploitation of the results is the formal higher education market, and most probably, organisations that offer distance and online training, as the first to be able to provide all kinds of access to their students (not only physical, and not only at a certain time of the day or the year).

Market Size

Figures from most of the statistical information sources indicate that the proportion of disabled people corresponds to about 20% of the population. Furthermore, data reveal increasing interest in HE by persons with disabilities and a growing number of people who attain the necessary qualification to be able to enter higher education. Consequently, pressure on HEI is going to grow further to be able to provide the necessary services for accessible learning. This trend is supported by the fact that the average age of students is increasing accordingly.

According to the "Employers forum on disability[104]",

- The total number of the population with a long-standing health problem or a disability in 25 European countries is estimated to account for more than 45 million citizens.
- These EU statistics only refer to the population that is 16 to 64 years old.
- This means that one in six persons (15.7%) of the working age population (aged 16 to 64) has either a long-standing health problem or a disability.

The amount of potential adult learners with disability in the targeted countries can therefore be estimated to 16-20 million. Besides, the data reveals that tertiary education serves as protecting factor: against unemployment, against poverty and social exclusion. The above-mentioned report also indicates that the participation of adults with disabilities in education is rising steadily. Therefore there is a need for EU4ALL results in the context of higher education.

[104] http://www.realising-potential.org/stakeholder-factbox/disabled-people-worldwide [Accessed 23 August 2010]

The market for EU4ALL will also be determined by the number of HEI in the targeted countries, which are estimated to about 425 public universities and 250 colleges of higher education. Private universities and training centres will be considered as well.

Gartner (2008) indicates that the priority for higher education institutions is to balance its continued focus on organizational efficiency with the uptake of innovative technologies. It goes without saying that in this report accessibility or any technology offering accessible services to students with disabilities is not referred to in any way. Gartner's report indicates that institutions are effectively challenged by new technology-based demands and behaviours from their core users. This goes in line with the hypothesis that end-users have an impact on the decisions taken by the institutions with respect to technology adoption.

Besides the Higher Education sector, which is the priority market for EU4ALL, the private sector also contains a large potential for EU4ALL although the conditions are different. It would be very difficult and of little use to try to quantify it with a number of companies or educational organisations to address.

The market is highly diverse and fragmented. And while legal requirements are major drivers for accessibility in HEI these are widely missing in the private educational sector. Here policies apply which aim at social inclusion, e-accessibility and LLL for societal groups being at risk of exclusion. Consequently the exploitation of EU4ALL in this field demands a different approach and the EU4ALL team will focus its activities on the stakeholders of e-inclusion which are:

- Public authorities such as ministries, regional entities, and public employment services responsible for the strategic direction and cooperating with coordinating bodies, NGOs and educational institutions when it comes to implementation.
- Social partners, either employers or employee organisations, are often closely related to educational organisations and companies providing further education and training.

This approach to the private market is suggested, because only those companies and organisations who are involved in the implementation of public policies aiming at accessibility are strategically relevant for EU4ALL due to their interest in the target group (level of awareness) and number of learners with disabilities that are enrolled (perceived market).

Besides the public policy area large corporations may also be relevant to approach because they often engage in tailor-made in-house training activities which may also be in need of accessible learning services. Specialised institutions focusing on the training of persons with disabilities are of course also potential clients who might be interested in a professional and universal solution regarding their learning services.

Political and legal context

At the individual citizen level, EU4ALL must take into account that the legal framework of a country is crucial for the potential participation of a student with disabilities in (higher) education. The

research and data for the report on legal, political and socioeconomic issues relevant to ALL (Weiermair et al, 2008) reveal that other factors may enfold a considerable impact as well. These may be (family) income and support, public financial and material support and support services for students with disabilities offered by the institution of choice.

The legal and economical aspects can of course not be addressed by EU4ALL, although they are factors that must be considered for the market approach strategy. However the last criteria referring to support services for students for disabilities offered by the institution can be directly improved with the support of EU4ALL.

The analysis of legal and political frameworks related to the market for adults with special needs reveals that various obstacles need to be overcome before a solution like EU4ALL can be adopted and implemented. For instance, the OECD (2003) indicates that institutions admit students with disabilities more as an occasional act of philanthropy on behalf of the needy than an educational duty inherent in the institution's mission, due to the lack of comprehensive strategy indicating their commitment. The fact that institutions offer accessibility services based on individual efforts, and not a community effort involving everyone, is clearly an obstacle to the diffusion of EU4ALL.

In summary, the analysis of the market and the legal, socio-economic context in which EU4ALL is to be deployed gives indices on the absorption capability of the target market. This is to be taken into account for the designing an appropriate market approach strategy as well as for the design of the offer.

EU4ALL community and dissemination channels

As indicated previously, the EU4ALL consortium constitutes a virtual enterprise with the ambition of offering accessibility services and technologies to lifelong learning providers. Different dissemination channels have been identified for the diffusion of the EU4ALL project outcomes and are described in the following paragraphs.

Consortium contacts and their externalities

Each partner of the consortium has a network of customers, agencies and peers. This means that each member has the capacity to communicate with those external players by means of face-to-face meetings, emails, phone conversations, video conferencing, etc. The messages that can be conveyed through theses means are personalised and can be as detailed as necessary. All kind of media can be used to support the dialogue, even demonstrations can be arranged. It also allows gathering the impressions of the interlocutor, their feedback being extremely important, as it may indicate how the discourse and project presentation has more chances to be understood and seen as beneficial. Consequently any interaction should be reported at the EU4ALL enterprise level, for tracking and analysis.

This channel also includes companies' commercial and marketing capacities. Various companies of the EU4ALL consortium have a commercial team composed of vendors and account managers. Although this channel is not principal in the context of EU4ALL, it can also be counted as a dissemination and diffusion channel.

Social networks and communities of practice

One of the EU4ALL objectives was to centralise all conversations regarding accessibility and lifelong learning in one virtual place. The idea was to gather the participation of existing communities of practice and use social networking tools to encourage discussion and dissemination of the EU4ALL approach. One of the main active channel is currently the group created on the Stellarnet[105] TELEurope[106].

Mass media and European Commission dissemination (marketplace, events)

Another communication channel is the mass media. This includes conferences and presentations to a general public, grey literature, articles in newspapers and magazines that are read by policy makers, information on websites, etc. Through this channel, less information can be conveyed, but a wider audience can be reached. Nevertheless, the use of videos that can be downloaded from the web facilitates the transmission of the project potential and benefits of use.

A part from supporting the project and providing opportunities for dissemination such as events and publications, the European Commission also offers tools and facilities that allow promoting the project outcomes at different levels, including a technology marketplace[107] for the promotion of project results.

Scientific journals and standardisation bodies

Finally, the last category of dissemination targets the scientific community. We expect scientific communications have a limited impact on the project adoption. However it is a good way to backup the project with academic references and evidences that are convincing in the eyes of the decision makers. The participation in standardisation activities and normalisation is also a path to promote the project outcomes. A contribution to a specification or norm can lead to a better diffusion of the innovation.

[105] The European Network of Excellence in Technology Enhanced Learning (www.stellarnet.eu)

[106] http://www.teleurope.eu/pg/groups/517/accessible-learning-for-all/?view=rss

[107] http://cordis.europa.eu/marketplace/about.htm

Target Market Approach Strategy

In principle end-users (students, adult learners, disabled people, elderly, etc.) have no decision capacity on whether education should be accessible and on which solutions can be provided. However they might have an influence on decision makers. They represent the final user demand for the EU4ALL service and their influence can be either direct or indirect. First, they are in contact with education staff, and can express their needs and expectations and through this channel, and provide useful feedback to the education institution. Second, they are a potential work force, and policy makers have both an economical interest and a social duty to provide them with appropriate education and of course access to this education. So, the high number of potential students and for social and equal opportunities reasons, put pressure on governments, as well as institutions, to find ways to include adults with special needs in the education process.

University or adult education staffs (including disability support staff) compose the following level of potential user and technology adopter. Although this category of user has still limited decision capacity regarding the inclusion of accessible services at their institutions, they can directly influence their own institution decision makers. They can present data the analysis of the students' feedback and provide their own experience. Sometimes they have introduced innovative methods and technologies to support their work and are able to bring an enlightening perspective to the institution.

Learning systems and services providers have also a potential influence on educational decision makers, in the sense that if the solutions they propose offer accessible services and this is affordable and practical, Education Institution decision makers might be more in favour of adopting such solutions.

Finally, we can conclude that EU4ALL relies principally on the openness of educational institutions decision makers for the adoption and use of the solution. However, this openness also significantly depends on other factors, such as the country, the laws in this country, European legislation in general, and the institution level of technology (i.e. online or distance education) and accessibility preparedness.

The picture below shows the different actors in the target market and how they potentially influence directly or indirectly the principal EU4ALL client, i.e. the decision maker.

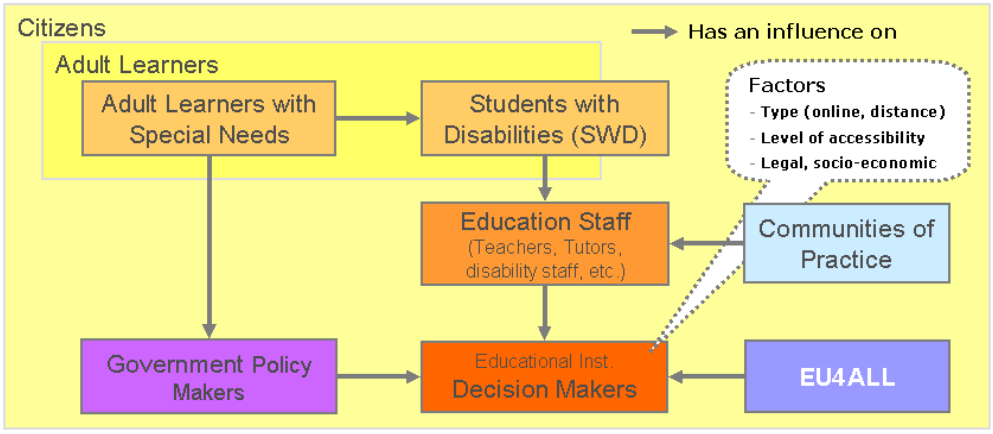

Figure 13: Diffusion and Adoption Influence

This analysis supports the planning and carrying out of a dissemination campaign taking into account the characteristics of the different stakeholders. In particular the potential influence each stakeholder has on the other, and on the final decision maker and adopter of the innovation.

Dissemination and exploitation strategies

Dissemination and exploitation or diffusion of the project results are two interrelated activities, which involve or affect not only the project partners, but also the target audience. Dissemination is related to the user awareness or knowledge that the project exists and which benefits it offers, while exploitation is oriented to the proper adoption or implementation of the EU4ALL solution. The idea is to identify an appropriate strategy for both steps, in particular because the audience is slightly different. On the one hand, we have seen previously that although end-user can have a significant influence on decision makers, they have no power of adoption themselves. On the other hand, innovators and early adopters can have a significant influence on the take up of the solution. We have also seen that depending on the institution condition, it is important to propose a flexible and modular set of services at different intervention levels.

Dissemination objective

Approach decision makers taking advantage of the influence of other stakeholders by means of dissemination to the general public is important. Channels include mass media dissemination, workshops, etc. High level staff training is also an efficient strategy to reach technical and disability staff, who can then have an impact on decision makers.

Exploitation objective

Transfer the experience of innovators to early adopters (Potential early adopters being institutions having already adopted new technologies to provide technology enhanced learning services, and residing in countries where the political and legal framework is most favourable, e.g. UK)

The strategy consists in approaching the most promising institutions first. Criteria are established to prioritise organisations, based on previous context analysis and the existence of drivers for institutional change. The idea is to identify innovators and encourage them to influence potential early adopter.

The approach considers contacting universities in countries that encourage education institutions the adoption of measures to foster the accessibility to higher education and lifelong learning. Those to be contacted first will be institutions that offer distance or online education. Progressively, remaining organisations will be approached. In parallel awareness campaigns will launched, based on the experience and influence of the first organisations contacted.

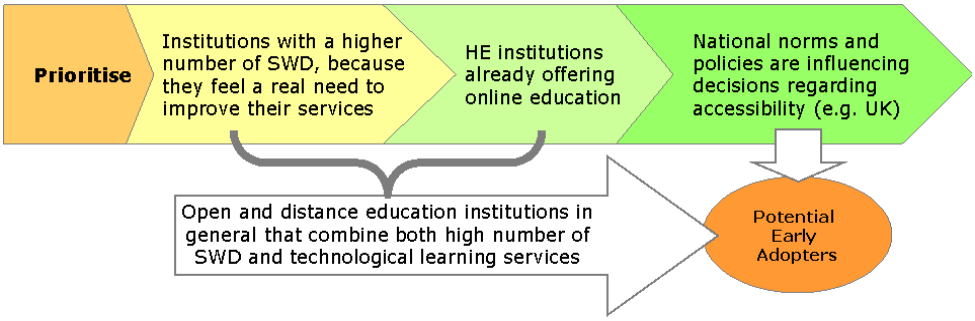

Figure 14: Priorities for the approach of Institutions in Europe

The first step will be to proceed to exploration. Web site exploration might be helpful to discover if the universities provide online or distance learning, as well as personal contact. This will allow establishing the contact priority and making first steps towards informing the right people about EU4ALL. The second step will be to carry out an audit to determine the type and institutional level of accessibility preparedness of the target organisations. The third step is to offer services, from consultancy and organisational development to technical evaluation and implementation.

As mentioned earlier, criteria have been established to identify the status of an institution. Those criteria will allow assessing the specific status of a particular institution and to develop the appropriate strategy and plan to approach this institution. Finally, we will be able to propose different EU4ALL levels of support, from awareness to implementation.

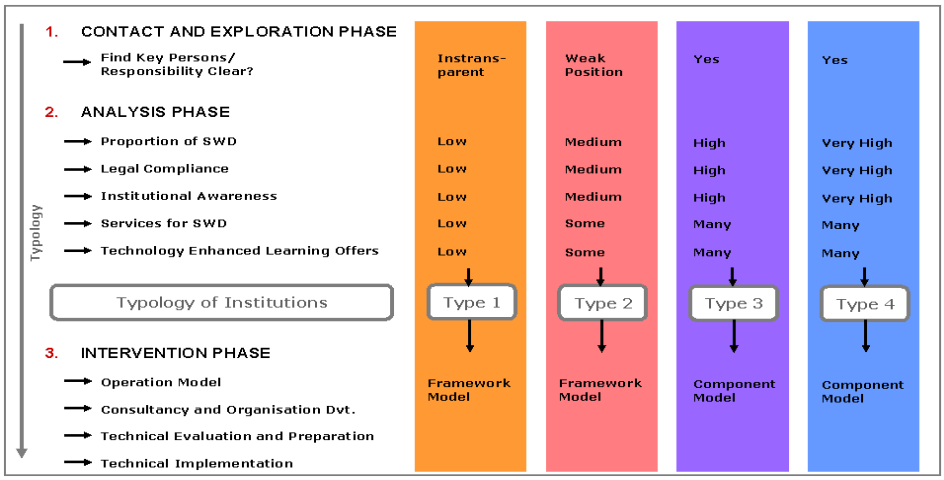

Figure 15: Summary of typology, action plan and related exploitation potential

The picture above shows how the different steps particularly apply to the different institutional conditions. It also shows how the EU4ALL approach can be offered in terms of services, including technology integration as a final step.

Conclusions

In this paper, we have shown that a technical solution to improve the accessibility of lifelong learning is available. However, for EU4ALL outcomes to be implemented and used by potential adopters, not only technology transfer is needed, but social innovation has also to take place. Factors such as institution accessibility preparedness, as well as their ability to change, are crucial when considering the potential adoption of the EU4ALL innovation. The legal and political frameworks are additional factors of influence. Therefore it is important to outline a strategy to approach organisations taking advantage of their potential for adoption and offer a progressive and modular implementation of the solution, depending institutions accessibility preparedness.

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Navarrete-Poretti, Rosemary & Mascitti, IlariaL: EL-Gate, bridging research across Latin-America and Europe: training the International Departments Managers to enhance Latin-American Universities' cooperation activities and the exchange with European Organizations

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Abstract

EL-Gate aims at strengthening the management and governance of Latin American Universities in identifying and implementing cooperation activities. Specifically, it strives to improve the capacities of International Department managers of Latin American Universities to design and implement a more effective and efficient university cooperation model, recognized and formalized into the university organization chart, integrated into the university development strategic lines, and able to find and to put resources in action (human, technologic and financial) to run cooperation activities.

The project rationale for focusing on capacity building of university international departments is the recognition that universities play a key role in the knowledge-based economy, considering they are situated at the crossroads of research, education and innovation. In fact, alongside their mission to produce and transmit knowledge through research and teaching activities, universities are called to open up more to industry, to lifelong learning and labor market needs, in addition to regional development strategies, in order to contribute to economic competitiveness and social cohesion. It is within this context that some European universities are adapting new models of integration in local systems and cooperation at a global level, acting as a gate between local and international dimensions, linking local actors to the knowledge produced by the world community of teachers and researchers. The present paper aims to provide a brief background of the state of EU-Latin American relations, followed by a description of EL-Gate methodology, findings from the first phase of the project's first year, and their implications for the upcoming course.

1. Introduction

EL-Gate – European Latin American Universities Cooperation Gate is a partially EU-funded project in the framework of the ALFA III programme, running from December 1st, 2008 to May 31, 2011. The main output from the first phase of this project, work package 1 (WP1), is the Cooperation Model and Skills definition, which is the result of the research and codification of cooperation models in use by European universities, an analysis of their relevance for the Latin America context based also on existing Latin American universities cooperation models, and the identification of the role and skills of the operators working in the field of university cooperation, in particular, the managers of university International Departments (ID). Subsequent to the identification of the Cooperation

Model and Skills, the EL-Gate project foresees an e-learning course for the ID managers based on the skills identified as necessary for an effective department. Another key project activity include the promotion of constant exchange and networking among a wider target audience of ID within Latin America and Europe through the creation of a virtual Community of Practice in the EL-Gate project website (http://www.elgate.eu).

This paper will highlight the key findings from the Report on university cooperation models appropriated for Latin America universities and on the required skills needed to implement them (the Final Report is expected to be published online shortly at http://www.elgate.eu). The Report also serves as a tool for increasing knowledge and interest for the course by Latin American university management boards, lectures and professionals.

The key findings fall under the following headings: 1) Institutional Characterization; 2) Internationalization and Organizational Culture; 3) Internationalization versus Institutional Strategic Mission; 4) Staff Recruitment, Basic Training and Career Development; and 5) the Implications of Findings for the EL-Gate Course.

2. Background

The EL-Gate project is funded by the ALFA III programme of the European Commission. ALFA is a programme of co-operation between Higher Education Institutions (HEIs) of the European Union and Latin America. The objectives of the programme are 1) to improve the quality, relevance and accessibility of Higher Education in Latin America; and 2) to contribute to the process of regional integration in Latin America, fostering progress towards the creation of a joint Higher Education area in the region and exploiting its synergies with the European Union.

The ALFA programme follows the strategic vision among EU-Latin American and Caribbean countries, as reflected under the EU-LAC Strategic Partnership established in 1999 following the Summit in Rio de Janeiro between Heads of State and Government of the EU and Latin American and Caribbean (LAC) countries. The next EU-Latin America/Caribbean Summit is set to be held in Spain this coming March, 2010, which will identify the new orientations and policy recommendations to tackle challenges affecting both regions, such as climate change, the economic and financial crisis, energy security, and migration.

By contributing to the strengthening of the management and governance of Latin American universities in identifying and implementing cooperation activities, the EL-Gate project responds directly to the ALFA III programme that placed priority on the institutional and academic management—management and governance of institutions of higher education. Specifically, the project aims to improve the capacities of International Department managers of Latin American universities to design and implement a more effective and efficient university cooperation model which is recognized and formalized into the university organization chart. The model is then integrated into the university development strategic lines and through its implementation, international departments are better equipped to find and put (human, technologic and financial) resources in action to run cooperation activities. The EL-Gate project is well poised to have a positive

impact by responding to the need of Latin American higher education institutions to become responsive to the pressures of globalization by avoiding lagging behind, namely by promoting competitiveness, forging transnational collaboration and accumulating the reputation/ prestige to be recognized internationally[108].

3. Research methodology

Before proceeding to the EL-Gate project findings, it is worth describing the research methodology used. The research followed the "competency-based human resource management" approach[109]. Since a number of different professionals are in charge of developing university cooperation, and models are often not codified, a series of interviews were conducted of a panel of expert managers within the International Department (ID) or other university structure committed to international cooperation within the university. The research plan applied under WP1 involved three main tasks.

During the course of the initial task (Research Plan and Tools Definition), the research working group set up a database of target people to interview, based on direct contacts with other universities and networks and drafted an interview script[110]. All partners involved in the project supported the working group in setting up the database, approving the interview script, as well as reviewing the data analysis reference guidelines.

The second task of WP1 (Analysis and Model codification), consisted initially in conducting interviews to International Department managers from European and Latin American universities. After data was collected both during the interviews, and from other official documentation, it was analyzed by the working group, which also codified the models implemented in the different universities.

The third task (Skills Definition) followed the results of the two previous tasks and focused on the definition of a professional profile of the ID manager, its role and skills. Seventeen interviews were conducted of university ID managers or academic authorities (and more are currently being completed), representing eight different countries, as follows:

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[108] Aliandra Raquel Lazzari Barlete, "Europeanisation of Latin American Higher Education: the shaping of the ALCUE Common area in Higher Education," European Masters in Higher Education, University of Oslo, 2008. (Retrieved April 20, 2009, from http://**mt.educarchile.cl/MT/jjbrunner/archives/libros/Barlete/Thesis_Aliandra_RLB.pdf**).

[109] David D. Dubois & William J. Rothwell, "Competency-based human resource management," Davies-Black Pub, New York, 2004.

[110] The main networks of partners' universities are: FOR.COM interuniversity consortium of 13 European universities; GUIDE Association of 60 worldwide universities; ODUCAL (Organization of Latin American Catholic Universities) and OUI (Inter-American Organization for Higher Education, Québec).

TABLE 1: Interviews Conducted

Country	University	Position	Name
Argentina	Universidad Nacional de San Martin (UNSAM)		
	Universidad Argentina de la Empresa (UADE)	Coordinator	Eduardo Andrés Ossoinak
	Universidad Nacional de Quilmes (UNQ)		
Brazil	Universidade Federal do Rio Janeiro (UFRJ)	Vice-Coordinator International Affairs Office	Vitor Alevato do Amaral
	Pontifícia Universidade Católica do Rio de Janeiro (PUC-RJ)	Vice-President for Academic Affairs International Programs	Ida Maria da Mota Rebelo
	Pontifícia Universidade Católica de São Paulo (PUC-SP)	Director	Renée Zicman
	Universidade do Vale do Itajái (UNIVALI)	Coordinator	Maria Elizabeth da Costa Gama
Chile	Universidad de Chile (UChile)	Director	Soledad Rodríguez
	Pontificia Universidad Católica de Chile (UC)	Director	Nuria Alsina
	Universidad de Concepción (UdeC)	Director	Iván Araya
Mexico	Universidad Autónoma del Estado de Hidalgo (UAEH)	Director ID Officer	Dr. Gabriela Castañón Berenice Alfaro Ponce
	Universidad de Monterrey (UDEM)		Norma Hernandez Perales
Netherlands	Open Universiteit Nederland (OUnl)		Fred de Vries

Belgium	Katholieke Universiteit Leuven (K.U. Leuven)	Director	Bart Hendrickx
Portugal	Universidade de Coimbra (UC)	Director	Filomena Carvalho
Spain	Universidad Nacional de Educación a Distancia (UNED)	Vice-rector Adjunct for international Relations	Fernando Monges
	Universidad de Alicante (UAl)		Roberto Escarrè Urena

From the outset, the research focused on selecting an even representation of universities from the vast geographical context of Latin America. The universities representing the European area where characterized by a more mature level of internationalization. However, they also tended to be historically older, and, as expected this increases their capacity to attract students, teachers and researchers from other countries and continents and influence the number of ongoing research projects in international cooperation. As foreseen, Latin American universities from the sample involved were characterized by a less mature level of internationalization. However, things are clearly evolving quickly in this field. In fact, even if most Latin American universities lacked proper or adequate organizational models, all were very much aware of the importance of internationalization even at a strategic level. In the selected universities, it also became clear that Latin American universities differ in the way they focus on mobility. Moreover, it became clear European universities are not as active in cooperation schemes with Latin America as the United States universities are, with the exception of Portuguese and Spanish universities.

4. Findings

4.1 Institutional Characterization

The selected universities represent very diverse histories and realities. In the selected group, there are very old universities, such as the University of Coimbra, originally founded in 1290, and the K.U. Leuven, founded in 1425, as well as very new ones, such as the Open Universiteit Nederland, founded in 1984. In terms of size, the largest university in the study is the UNED, which stands out as a mega university. However, even the second largest, the Federal University of Rio de Janeiro, is about twice as big as all the other ones, with the exception of the Catholic University of Rio de Janeiro, whose student population is only about one third of the Federal university.

In terms of student mobility, however, it's the newest and the second oldest – the OUnl and the K.U. Leuven, which are the most international. In fact, over four thousand foreign students are enrolled in the Dutch Open University. Nevertheless, the large majority of these students are living just next to the border in Belgium's Flemish region. The Ounl represents a special case in the way it refers to virtual and not physical student mobility.

As for the other universities in the study, the findings revealed that the oldest universities – the K.U. Leuven and the University of Coimbra—have the largest foreign students living on campus. The fact that both UC and K.U. Leuven are amongst the oldest European universities can indeed explain why they are so popular. In the case of UC, this refers especially to postgraduate students coming from Brazil and undergraduates from Portuguese-speaking African countries, notably Cape Verde.

TABLE 2: Main Institutional Indicators

	FOUNDING YEAR	STUDENTS ENROLLED	FOREIGN STUDENTS	OUTGOING STUDENTS	STAFF	PROGRAMS
KULeuven	**1425**	**21.000**	**2.950**	n/d	**5.000**	**35** (_nder graduate) **202** (postgraduate) **138** (continuous training)
UFRJ	**1920**	**47.676**	**277**	n/d	**11.647**	**147** (undergraduate) [2 in e-learning] **85** (postgraduate) **74** (Phd)
PUC- RJ	**1941**	**13.000**	n/d	**373**	n/d	n/d
PUC- SP	**1946**	**31.800**	**<360**	n/d	1.500 (teacher staff)	**46** (undergraduate) **25** (postgraduate) **16** (Phd) **75-80** (continuous training)
UAEH	**1961 (1869)**	**30.000**	n/d	n/d	n/d	**43** (_nder graduate) **16** (postgraduate) **8** (Phd)

	FOUNDING YEAR	STUDENTS ENROLLED	FOREIGN STUDENTS	OUTGOING STUDENTS	STAFF	PROGRAMS
OU nl	**1984**	**29.104**	**4.366**	n/d	**751**	**305** (academic _nder) **10** (postgraduate) + 1 MBA
UC **[Portugal]**	**1290**	**21.482**	**1.953**	**399**	**2.853** (1.663 [teacher and research staff] + 1.190 [administrative staff])	**95** (_nder graduate) **135** (postgraduate) **51** (Phd)
UNED	**1972**	**200.000**	n/d	n/d	**10.300** (1.400 [teacher and research staff] + 6.900 tutors + 2.000 [administrative staff])	**31** (undergraduate + postgraduate) **36** (2nd cycle) **5** (continuous training)
Ual	**1968/1979**	**28.161**	**1.327**	**142**	**2.319** (1.306 [teacher staff] + 119 [research staff] + 894 [administrative staff])	**22** (Diplomatura) **25** (undergraduate) **6** (2º Cycle) **22** (postgraduate) **20** (3º Cycle)

n/d – no data available

However, it's one of the newest universities among the sample, the University of Alicante, who is third in the ranking in terms of incoming student mobility. Alicante draws from Europe and the Erasmus Programme as its main source of foreign student recruitment (1.118 students to 704 enrolled in Coimbra). In both the case of the University of Coimbra and Alicante, student mobility is basically incoming and not outgoing. In fact, only a small amount of students enrolled in those universities are involved in mobility schemes.

It's also interesting to note that, even if all universities recognize the importance of student, teacher and researcher mobility, the reality is very much focused on student mobility and, most especially, incoming foreign students, as stated above. The number of foreign teachers in European and Latin American universities is not at all comparable to what happens in the major American universities. Out of the Universities in the study, only the Ounl has a significant percentage of foreign teacher staff (15% - 113). It's also worth mentioning that the level of student mobility in Europe is much higher than in Brazil. This is perhaps based on the success of international mobility programmes funded by the European Commission.

With the notable exception of K.U. Leuven, which delivers over eighty Master programmes in English, the universities in the study don't appear to show much interest in providing courses in foreign languages. We can point out PUC-RJ which provides four courses in English and the UC which provides some seminars in English. The Ounl also provides study materials in English.

4.2 Internationalization and Organizational Culture

It's paramount in this field to correctly and fully understand the notion of internationalization and how it has been evolving. Initially, the concept was only used in political science. It was only brought to the field of education in the 1980s. In fact, mass access to higher education, technology new developments, and increasing migration of populations have been amongst other relevant aspects contributing to the evolution of the notion of internationalization. Therefore, in order to analyze this evolution, we should take into account the diverse and constantly changing social, political, economical and cultural contexts of higher education.

In the early 1990s the notion of internationalization was associated with a multiple set of activities (such as academic mobility, global or multicultural education, area studies, and study abroad), programs and services that fall within international studies, international educational exchange and technical cooperation[111].

In 2003, J. Knight tried to cope with the new developments of contemporary societies and submitted a new (working) definition of internationalization. This definition is intentionally neutral, as underlined by Knight herself, at the national, sectoral, and institutional level: "the process of

[111] Arum, S., & J. Van de Water (1992) The Need for a Definition of International Education in U.S. Universities. Bridges to the Futures: Strategies for Internationalizing Higher Education, C. Klasek, ed., IL: Association of International Education, p. 202), in Jane Knight on Higher Education in Latin America: The International Dimension, p. 11.

integrating an international, intercultural or global dimension into the purpose, functions or delivery of postsecondary education"[112].

4.3 Internationalization versus Institutional Strategic Mission

Barbara Kehm e Ulrich Teichler consider "(…) internationalization in higher education tends to be treated as a highly normative topic with strong political undercurrents. This can be observed by the unspoken rivalry of certain values. On the one hand, internationalization in and of higher education is regarded as something positive and important. Almost all higher education institutions refer to their international dimension in mission statements and in formulations of their profiles. On the other hand, internationalization is embedded within a national value system, which - in the face of growing competition - implies that studying is better done at home. Finally, internationalization also reflects the existing international inequality between nations and world regions because about three fourths of the world mobility is vertical"[113].

5. Latin American Universities

Based on the Latin American universities (Brazilian, Mexican and Argentinean) included in our sample, they don't appear to have the aim of internationalization explicitly included in the mission statement. From a theoretical perspective, internationalization is taken and valued as a macro strategy but it doesn't materialize in concrete specific activities or in a practice.

Yet, more recently, Latin America universities have started to implement a pro-active policy in this field. The goal is still very much focused (if not exclusively) on student mobility. This is notably the case of the Catholic Pontifical University of the Rio de Janeiro (Brazil) and the University of Monterrey (Mexico). Through the interviews concluded during this first phase of the project, internationalization is also associated with teacher and researcher mobility, in addition to involvement in international networks and the fostering of personal and teams of international cooperation.

Hence, within the Latin America universities selected in our sample, several different levels of internationalization policy and strategy can be observed. It can range from the non-existence of a strategic policy to aim (e.g., as is the case of University of Hidalgo) to the very developed and integrated policy of other universities (e.g., the University of San Martin, in Argentina). In the latter university we could find an advanced vision towards internationalization that does not focus solely on the Spanish-speaking world.

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[112] Jane Knight (2003), Updating the Definition of Internationalization International Higher Education,(Fall) (Retrieved January 16, 2010, from http://www.bc.edu/bc_org/avp/soe/cihe/newsletter/News33/text001.htm)

[113] KEHM, Barbara M.; TEICHLER, Ulrich (2007), Research on Internationalization in Higher Education. Journal of Studies in International Education, 11 (3-4), 262. (Retrieved January 16, 2010, from http://jsi.sagepub.com/cgi/content/refs/11/3-4/260 em 15-1-2009)

6. European Universities

Overall, the European universities selected also show a diversified set of internationalization policies and organizational approaches to its implementation. Both traditional face-to-face as well as open and distance learning universities took part in our selection. In the first group, we've included the University of Coimbra (Portugal), the University of Alicante (Spain) and the Catholic University of Leuven (Belgium). As for the second group, it included Open Universiteit Nederland (Netherlands) and the Universidad Nacional de Educación a Distancia (UNED) in Spain.

In terms of size, all the European universities analyzed present very similar characteristics: the Catholic University of Leuven has about 30.000 students, slightly over 29.000 at the Open Universiteit Nederland. Distance education universities take as their main mission adult training. Thus, UNED aims at facilitating access to higher education to people who by some reason have not be able to do so, as well as workers who wish to complete or acquire a university degree. The Open Universiteit Nederland, on its hand, shows particular concern with the implementation of innovation in lifelong learning, adult learning and assist traditional universities with this.

Both of these universities show concern with the issue of internationalization. Yet, due to their specific features, notably the physical absence of students (not having a traditional campus, but only limited contact education), the goals of open universities in these field also hold special aspects. For the Open Universiteit Nederland, contrary to most institutions for higher education, the exchange of students or attracting incoming students is not a prime focus[114]. Thus, as we can see, in both distance education universities internationalization is not based on student mobility. In the case of the Open Universiteit Nederland, the institution started a large number of projects (as much as 200), which all reflect what is set as its mission. The projects are all EU-funded. The University therefore focuses on researcher mobility.

The international activities of the Open University are especially focused on creating a relations network that includes all components that are needed to achieve e-learning, from computer hardware and networks to educational materials and technical expertise. The Open University is convinced that this requires co-operation with internationally operating companies. In 2002, the institution renewed its strategic alliance with Perot Systems, an international ICT company. It also extended its collaboration with Cisco Systems, worldwide market leader in electronic networks, among other things toward the exchange of expertise in research and development. We should also emphasize the strong cooperation undertaken by the university with EADTU, the United States and Korea.

Regarding UNED, the university actively cooperates in several networks and associations. For example, UNED is the founding member of AIESAD: Asociación Iberamericana de Educación Superior a Distancia (1980). This network coordinates and builds relationships with other European and Latin

[114] In the institutional website it is referred the OU.nl has 4.366 foreign students enrolled, which supposedly are Flemish Belgium students enrolled in distance courses operating with the support of the Flemish study centers network. This network served 1.936 students by 2002. These indeed would be foreign students although not involved in mobility schemes.

American universities for the establishment of joint degrees and to design programs for collaboration with the implementation of the technology needed for distance learning: in particular with Central America and Latin America.

Traditional European universities (Leuven, Alicante and Coimbra) include the goal of internationalization explicitly in its mission, although under different forms. For all three of these universities "internationalization is a strategic goal" which translates into practice as covering "everything with an international dimension at the university: not only teaching, student mobility, networks, international curricula, research, etc. It's the integration of this into three areas: student area, teaching staff, and administrative part (research, curricula, etc)". Student mobility is in traditional European universities just another part of internationalization not having therefore the same relevance attributed by Latin America universities.

In all European universities we can therefore see a broader and more comprehensive perspective on internationalization. For these universities the concept goes beyond student mobility to include teacher and research mobility, as well as collaboration in international research projects and networks. However, with the exception of Leuven, internationalization of universities depends very much on individual efforts[115]. "Professors already have relationships with universities abroad and often bring proposal ideas to the intention of the department" (UNED). As acknowledged by the representative of the University of Coimbra, internationalization is still mostly connected with teacher and research participation in international projects. The ID focuses its action basically in promoting and coordinating that activity.

In sum, all selected universities, both European and Latin American recognize internationalization and basically, student and teacher mobility as an important part of their mission, as well as of their strategic planning. It's indeed a shared basic concern amongst them since the late 1980s. With the exception of the Dutch open university, all have a Vice-rector or Vice-president directly in charge of the international policy and strategy implementation. Moreover, the universities understand indeed their future institutional development will be very much dependent on the ability to integrate good networks. However, in spite of this, reality shows successful university internationalization has not relied as much on the effectiveness of the institutional policy or institutional rector strategy as it has on the real individual and collective capacity and competence of the international offices teams, and especially its leaders.

University strategic development in Europe is only now starting to introduce international curricula. One important note is therefore the pivotal importance of projects to the fostering of internationalization in European and also Latin American universities. According to the information collected in the interviews, in general, for the selected universities, the concept of internationalization includes basically the following areas:

1) Mobility of students, teachers, researchers and staff (incoming and outgoing), including both admissions from foreign institutions and transfers from other national universities;

[115] The University of Monterrey has a similar situation in this aspect.

2) Promotion, selection and management of research projects, which includes financial management, notably search for funding, must be directly related to the university mission and policy in order to promote quality. Research projects should aim at overcoming regional geographical and political boundaries of the university area of insertion. This area should seek to ensure its financial autonomy in the middle run, as already mentioned above;
3) International networks among universities and institutes, but also involving Government(s) (Ministries, Embassies, etc.), and also foundations and business public and private.

6.1 Staff Recruitment, Basic Training and Career Development

Within the selected universities, staff recruitment has different sources and uses different processes. Basically, there's a general preference for graduates in Language and International Relations. In fact, the majority of the international office heads interviewed agreed its critical staff selection should focus in the following: foreign languages competences (not just English and French); social and interpersonal competences; multicultural competences; technological competences. Anyway, in what regards specific training of university international office staff, there aren't any programmes running either of basic or continuous nature. Most offices rely on conferences and seminars for know-how dissemination and sharing.

6.2 Implication of Findings for the EL-Gate Course

From the analysis of European universities IDs, it's impossible to find a single successful model but a common pattern of successful good practices. In fact, a model like the one adopted by the University of Alicante seems quite interesting and effective. Yet, it may also prove to be difficult to implement within an organizational culture typical of Latin American universities, especially the public ones, which are very institutional.

From what seems to be the current practice in Latin American universities, we would be inclined to consider easier to implement a simple Model that basically promotes teacher and researcher staff as well as students mobility. However, this could represent a very small amount of added value to the already existent ID units in Latin American universities. On the other hand, the European know-how today seems to rely much more on the ability to promote an open space for free mobility of academics and students within a common legal framework that fosters international cooperation as such. In this sense, we should try to focus our cooperation model on a basis of knowledge sharing at a more sophisticated level, which includes training ID leadership for promoting intercontinental partnerships both for research purposes and the establishment of joint degrees or other cross-border educational programmes (for instance, franchising).

As a consequence, the EL-Gate course should probably focus in developing trainees' competency on the following fields:

- Flexible organization processes;
- Leadership and team motivation and coordination;
- Communication skills;

- Multiculturalism;
- Individual ethical responsibility;
- Project management;
- National/international networks;
- International Public and Private Funding and resources availability;
- Accountability and quality management.

In our proposal we partly follow Barbara Kehm and Ulrich Teichler, who identify seven main topics where European research in internationalisation of higher education has been focusing recently:

- Mobility of students and academic staff, to which we should now add mobility of programmes;
- Mutual influences of higher education systems on each other;
- Internationalization of the substance of teaching, learning, and research;
- Institutional strategies of internationalization;
- Knowledge transfer;
- Cooperation and competition;
- National and supranational policies as regarding the international dimension of higher education.

Additionally, in our course planning it's fundamental to focus on the capacity of trainees to cope with the ongoing changing scenario in an already unstable professional field. In fact, the driving forces in higher education internationalization are no longer just institutions and national policy makers, but increasingly also supranational organizations. New actors have been entering this exciting field, notably international consortia and networks. Therefore, the geographical perspectives have been broadened considerably so that internationalization in higher education has shifted to encompass all regions of the world. The EL-Gate project is indeed a clear evidence of this changing reality.

7. Conclusion: Proposed Learning Path for the International Department Manager Training

The online training course on International University Department Management will imply a student workload of 120 hours plus 40 hours for the development of the project-work, representing a total of 6 ECTS (4.5 + 1.5 ECTS, equivalent to a workload of 160 hours). The course proposal is based on a structure of learning objects. The duration of the course is 6/7 months plus the project work lasting for 1/2 months, partly dedicated to the development of the project and partly to its presentation and discussion (via Skype, video conferencing, or other alternative tool).

From the analysis of the data collected during the interviews we were able to define a set of competencies from which we suggest to organize the training course in view of the definition of a curriculum for International Cooperation Office Manager training.

After the completion of the course it is expected that the trainees are able to:

1) Develop a comprehensive and updated (state of the art) understanding of the different fields in which the Office should act, articulating it with the goals and mission of the university;
2) Develop a multicultural sensibility;
3) Develop social and inter-personal skills;
4) Communicate fluently in English, in writing and orally.

In order to achieve these aforementioned competences/skills, we propose a course based on a set of learning objects that allows work to be carried out in each of the topics to be based on a personalized learning path. This is expected to be established in reference to each trainee's previous experience and acquired knowledge on the topics as well his/her capability to reflect theoretically based on the materials.

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Ossiannilsson, Ebba & Landgren, Lena: International Benchmarking of eLEARNING at Lund University, Sweden – Aims and Results

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Abstract

In 2008-2009 Lund University, Sweden, took part in two European benchmarking projects on eLearning, *E-xcellence+* (EADTU) and *Benchmarking eLearning exercise2009* (ESMU) as part of the University's policy for quality assurance and quality enhancement of education. Among the aims were

- to adopt, as the first Swedish university, a benchmarking process according to quality criteria of eLearning formulated by the Swedish National Agency for Higher Education (acknowledged also by ENQA),
- to benchmark two international net-based master programs, both dealing with sustainable development, and
- to take part in collaborative learning on European level in order to identify good practice and to formulate roadmaps

A gratifying result was that the benchmarked master programs were awarded the *E-xcellence Associates label* as the first programs in Europe. The label focuses on the capacity of *accessibility, flexibility, interactivity* and *personalization* of eLearning in education.

This year (2010) LU was invited to participate in the *First dual-mode distance learning benchmarking club*. With experiences from earlier benchmarking projects in mind, LU will contribute to the work of presenting a correlation of benchmarks from the above mentioned projects with the *Pix &Mix*-methodology.

The experiences from taking part in these projects are manifold. The learning process and detailed discussions internally as well as externally contribute to raised insight, understanding and implications for deeper strategies and developments at LU. Through the latter project a conceptual framework emerged, consisting of some critical concepts in a holistic perspective.

Introduction

Quality development and evaluation make up crucial parts of the activities of educational institutions today, and benchmarking has become an increasingly common method used for performing quality work. Lund University (LU), Sweden, has participated in benchmarking projects organized by the *European Centre for Strategic Management of Universities* (ESMU) since 2000. eLearning was the subject for benchmarking by ESMU in 2003, when LU also participated, and since some years LU is again involved in a number of projects dealing with benchmarking on eLearning.

In 2007 a project was launched at LU aiming at develop international online master courses (Nilsson & Ossiannilsson, 2008). The project was highlighted nationally by the *Swedish National Agency for Higher Education* (NAHE) and internationally by the *European Association of Distance Teaching Universities* (EADTU). At the same time a study on quality work in eLearning was conducted by NAHE, which resulted in a report proposing that eLearning should be included in any evaluation of higher education. The report also presented a model consisting of ten quality criteria for eLearning, *E-learning quality* (*ELQ*) (NAHE, 2008).

Thus, in 2008 LU became appointed by NAHE as a pilot university in EADTU's benchmarking project *E-xcellence+* with the aim to investigate whether eLearning courses can be quality controlled in the same way as so-called traditional campus education (Ubachs, 2009). LU contributed also to the project by being a traditional and research-intensive university and in testing the model at program level (Ossiannilsson & Landgren, 2010a).

This in turn led to the participation in 2009 in another European benchmarking project, ESMU's *e-Learning Benchmarking exercise* (*ELBE*), at the initiative of the University of Southern Denmark (SDU) and in cooperation with EADTU (Comba *et al.,* 2010*;* Ossiannilsson & Landgren, 2010a, b; Williams & Rotheram, 2010).

The incentives to participate in the two projects were partly to get a picture of the situation of eLearning at LU, partly to get an overview of how these conditions appear in a European perspective. Further intentions were to take part in the collaborative learning process, inherent in the benchmarking method, and to obtain evidence for implementing possible changes and improvements, which is another purpose of the benchmarking method as such.

In 2009 LU was invited to participate in the international project the *First dual-mode distance learning benchmarking club*. From past experiences LU was asked to make comparisons between the different benchmarking models and their criteria in relation to another widely used model, namely the *Pick&Mix* one. The task was also to suggest improvements of the *Pick&Mix* model and to suggest and include possible new criteria according to LU's experiences with European benchmarking processes and to the Swedish frame of reference, which has gained international attention through the *ELQ* model by NAHE but also through the success of the Swedish Net University (2002-2008).

This survey provides a short summary of LU's involvement in the projects referred to above and of the results dealing with areas found critical for development, planning, implementation and quality evaluation of eLearning. The survey reflects on their significance in a wider learning context in the shape of an emerging conceptual framework.

It must be stressed, though, that the results from the survey are yet preliminary. Analyzes and reflections are still ongoing and since the first findings have just been drawn they need to be further examined and confirmed. The observations seem, however, to closely follow the current discourse and debate in and for the 21st century.

Following an introduction to benchmarking of quality in higher education, some reflections on the results from the projects as such (*E-xcellence+*, *ELBE*, and the *First dual-mode distance learning benchmarking club*) and on relevant discussions in the eLearning field are given. Finally the working process by LU on the latter project is explained as a background to a discussion on an emerging conceptual framework.

Benchmarking

Benchmarking initiatives are often conducted as self-evaluations, including systematic data and information gathering, from predefined benchmarks. The goals of benchmarking are to formulate together with others strengths and weaknesses and areas for enhancement based on results from the benchmarking projects as such (Ossiannilsson, 2010a; van Vught *et al*., 2008a, b).

By participating in benchmarking processes not only the *state of the art* in the investigated area and possible change potentials are obtained. Since benchmarking deals with changes, but also with enhancement and successful implementation the *gap* becomes visible and explicit. Moriarty & Smallman (2009) express it as follows: *The locus of benchmarking lies between the current and desirable states of affairs and contributes to the transformation process that realizes these improvements* (p. 484). In addition, awareness, both individually and collectively, on the organization itself is a result of participation, which can be considered as a direct and substantial value (Ossiannilsson, 2010a, b, c). Benefits can also be expressed as it is defined in ten (10) statements by ESMU: *self-assess institution, better understand the process, measure and compare, discover new ideas, obtain data to support decision-making, set targets for improvement, strengthen institutional identity, enhance reputation, respond to national performance indicators and benchmarks* and *set new standards for the sector* (van Vught *et al*., 2008b).

That benchmarking is a generally accepted method for quality assurance and enhancement in higher education can be exemplified by the recently finalized 2-year project *Benchmarking in European Higher Education*. The project, financed by EU, was designed to support development and modernization and to make higher education attractive. Furthermore, the project aimed at attracting attention to the goals of the Lisbon and Bologna processes for higher education and lifelong learning (van Vught *et al.,* 2008a, b).

EADTU, *E-xcellence+*

EADTU coordinated in the early 2000's the *E-xcellence* project as part of the EU programme *eLearning 2004*. The project, implemented in cooperation with ENQA and UNESCO, brought together experience of lifelong and flexible learning from thirteen countries in Europe, as well as expertise on quality assurance.

Benchmarking criteria regarding three categories, *management* (strategic planning and development at both institutional and program level), *products* (curriculum/syllabus design, course design and course delivery) and *services* (teacher and staff support as well as student support) were developed. They cover institutional, pedagogical, technical, ethical, and management aspects of eLearning with specific focus on four priority areas of progress; *accessibility*, *flexibility, interactiveness* and *personalization.* All in all, a total of 33 benchmarks with indicators, including description of what can be regarded as excellence level, are used.

The *E-xcellence+* project is the implementation phase of the *E-xcellence* and can be described as a reference point for education, change and innovation of eLearning. The project broadens the implementation of and provides feedback on the model at a local, national and European level (Ubachs, 2009).

During the project the two selected master programs at LU, the LUMA-GIS (Lund University Master's Program in Geographical Information Systems) and the EMP (Environmental Management and Policy), were processed through all the benchmark criteria. In addition, at management level, i.e. at infrastructural units in various ways responsible for the common resources of eLearning at LU (Human Resources/Centre for Educational Development, the Library Head Office, Lund University Computer Center, Planning Division, Evaluation Unit, International Relations, Department of Communication, Student Division and the Student Union) benchmarking processes were also conducted.

A gratifying result of the EADTU *E-xcellence+* project was that the benchmarked LUMA-GIS and EMP programs were awarded the *E-xcellence Associates label* (see Figure 1) as the first in Europe. The label focuses on the capacity of *accessibility, flexibility, interactiveness* and *personalization* in education (Ubachs, 2009). It should be noted that LU as a whole was awarded very high judgment. However, as the University at large doesn´t have an explicit strategy to be an e-university, the *E-xcellence Associates Label* couldn´t be issued for the institution as such.

The educational institutions/training programs that are awarded this label belong to an association of Excellence Environments in e-learning, *Associates in Quality.* The association is promoting a European movement in quality management of eLearning with special focus on the four areas of progress, i.e. *accessibility, flexibility, interactiveness* and *personalization.* The Association is furthermore a network with an e-portal **where ideas, experiences and collaboration can be elaborated (Figure 2).**

Figure 1. EADTU:s *E-xcellence Associates label.*

Figure 2. The EADTU *E-xcellence Associates label* homepage with the four areas of progress in eLearning clearly stated.

As the success factors referred to above show, eLearning gives added value of *accessibility, flexibility*, *interactiveness* and *personalization* within higher education. Accessibility and flexibility mean possibilities for students to study and share learning resources regardless of time, space and place, but also that specific needs of students with various disabilities, such as for example dyslexia, can be met. Interactiveness concerns interaction with material/course resources as well as interaction between fellow students but also between students and teachers (Moore, 1989, 1997).

Several scholars (Bonk, 2009; Jaldemark, 2010; McLouglin & Lee, 2008, 2010) emphazise that personalization is one of the most crucial concepts for learning in the 21st century. Thus, Mc Loughlin and Lee (2008) stress that challenges of eLearning in a networked society concern mainly the meaning of the three P:s, *personalisation, participation,* and *productivity* (Figure 3). The authors state that those dimensions are crucial for successful eLearning, i.e. the individual´s prerequisite, motives and motivation (*personalisation*), the individual´s own participation in the learning process (*participation*) and the individual as co-producer in the eLearning process (*productivity).* The model by McLoughlin & Lee also contains subheadings, which exemplify the meaning of the concepts. Thus, *personalization* includes learner choices, learner agency, customization and self-regulation & management. *Participation* is understood through the four C:s, communication, collaboration, connectivity and community. Finally,

productivity is understood within learner-created content, contribution to knowledge, generativity and creativity and innovation.

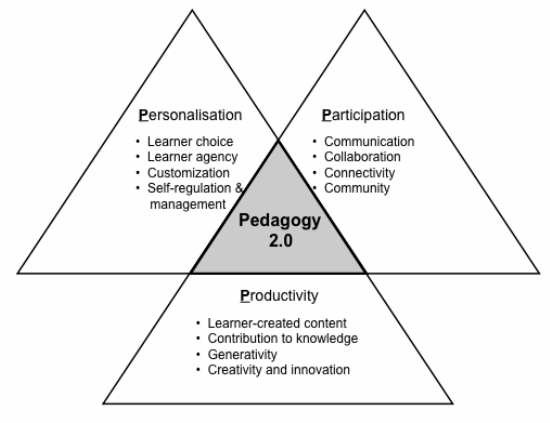

Figure 3. The Three P's of Pedagogy for the Networked Society: Personalization, Participation, and Productivity (Mc Loughlin & Lee, 2008, p. 16).

ESMU, Benchmarking eLearning exercise 2009

The aims and the outcomes of the ELBE project is are described in detail in the present proceeding by Comba *et al*., 2010. Therefore we focus on some of the results that came up from the project regarding LU.

Although a common definition of eLearning was the basis for cooperation in the *ELBE*, it was nevertheless clear that the descriptions and interpretations of concepts and issues differed between the participating universities. From Swedish perspectives differences were perceived in the general education culture regarding democratic processes, such as students' rights. This became evident in the interpretation of detailed benchmarks regarding the *E-xcellence+* model. Against this background some benchmarks related to personalization and library resources in the eLearning field were redefined with initiative from the Swedish partner.

It was clearly reflected both in the documentation of the conducted benchmarking, but also in several workshop discussions, that LU emphasizes more explicit than others how new technology can enrich learning and teaching in relation to individualization, globalization and sustainable development. Additional examples where LU differed from the other universities were the conscious strategy on various pedagogical approaches such as scholarship of teaching and learning (Trigwell & Shales, 2004), constructive alignment (Biggs, 2003), professional teacher training (Lindberg-Sand & Sonesson, 2008) and other support for teachers, in particular the approach on rethinking University education according to Laurillard (2002). She argues for the relationship between media and pedagogical approaches, i.e. media that can be used for narratives, communication, interactivity, adaptation and production. In

addition, the strategic support from the Centre for Educational Developments, and the variety of electronic resources provided by the Library Head Office for teachers and students were pointed out.

The First dual-mode distance learning benchmarking club

The *First dual-mode distance learning benchmarking club,* the first international benchmarking club with a *blended learning* approach*,* was launched in 2009, but is conducted mainly in 2010. LU participates together with six other universities: University of Leicester (coordinator) and University of Liverpool, UK, University of Southern Queensland, AU, Massey University, NZ Thompson Rivers University, CA, and KTH, the Royal Institute of Technology, SE. LU has been invited to contribute due to competence, international reputation and recognition concerning benchmarking of eLearning in higher education and with special tasks, as described below, besides the benchmarking process as such.

Benchmarking in this project has its point of departure with the *Pick&Mix* model, a well-known benchmarking method especially in UK, but also used in Australia. The method has recently been adapted to ongoing development of eLearning and examined by international expertise through the *Re.ViCa* project (Schreurs, 2009), guaranteeing a high quality of the method.

Pick&Mix consists of almost hundred benchmarks. The high amount gives flexibility, and universities can choose themselves which benchmarks they will consider. Eighteen (18) of those are however *critical success factors,* i.e. factors which are considered critical for success in eLearning. Among those, 10 *key success* factors have been highlighted through the *Re.ViCa* project. They are as follows: *eLearning strategy*, *decisions on project, training*, *costs*, *technical support to staff*, *decisions on programmes*, *leadership in e-learning*, *market research*, *student understanding of system* and *student satisfaction* (Schreurs, 2009). All benchmarks are valued according to six levels and in going through the benchmarks a coloured matrix is received (according to a traffic-light model). Through the matrix the *state of the art* of one's institution/department appears explicit.

The project aims at disseminating and implementing the *Pick&Mix* model. Participating universities will go through the benchmark process as such. Within this process generic and *critical success factors* will be explored*.* Based on the accumulated expertise in the field of benchmarking and with regard to NAHE's *ELQ* model, the purpose of LU's participation is slightly wider and to some extent different from the others in the project. LU will:

• benchmark, in accordance with the detailed criteria

• consider the already defined and/or suggest any other *critical success factors*

• based on experience and results from EADTU's *E-xcellence+* and ESMU's *ELBE* correlate *Pick&Mix* with those.

The working process within the First dual-mode distance learning benchmarking club

So far, LU has completed an initial review of all three objectives of the project the *First dual-mode distance learning benchmarking club.* A number of interesting observations have already been noted. For example, a certain consistency between the different benchmarking methods is visible. In addition some *critical success factors* have emerged, such as student perspective, management and strategies, and educational and technical support. It also appeared obvious that some of the current benchmarks in the *Pick&Mix* model were too detailed and also to some extent somewhat old-fashioned in their expressions, not corresponding to current terminology in relevant studies on eLearning of today. Further, the awareness and importance of a holistic and educational contextual framework became obvious, i.e. in connection with the project it has been identified how the ongoing discourse and debate affect how *critical success factors* and *key success factors* can be identified.

Going through the *Pick&Mix critical success factors* (18) according to our experiences from *E-xcellence+, ELBE* and *ELQ*, to the ongoing debate and discourse in the field and to how important those criteria are from a Swedish and LU perspective, we came up with a result of three (3) remaining success factors. We found that some of the other benchmarks in the *Pick&Mix* model were of importance from our experiences and from a Swedish and LU perspective, so those were added (17).

Finally eight (8) totally new benchmarks were added, which we think are of importance according to the current discourse and debate. They are *productivity, participation, transparency, interactiveness, constructive alignment, services for students and staff, democratic processes* and *legal security*. In total our revised model consists of with 28 benchmarks (Table 1).

In the following, all three categories of our revised and suggested benchmark model will be commented on. Firstly, it has to be said that some of the current benchmarks of *Pick&Mix* are too self-evident. That is the reason why some benchmarks easily could be cancelled, such as for example *Valid LMS*. Regarding the category *remaining critical success factors*, those three (3) benchmarks are also in some way obvious, but on the other hand they need to be emphazised. This is especially valid for the benchmark *Management Style*, which we, however, chose to rename S*trategic Management*. In the *E-xcellence+, ELBE* and in the current discourse and debate, this area is considered crucial and also very much of importance whether successful eLearning could be reached and maintained or not.

For the category *selected benchmarks from the existing list* (17) those are of importance, not at least from a student perspective, as they concern for example library services, personalization, issues on pedagogy, Open Educational Resources (OER) and other learning materials and teachers´ competences and skills. Finally, the eight (8) *added benchmarks* have through experiences, comparisons of the benchmarking models and the current discourse and debate in the field of eLearning appeared obvious for successful eLearning and boundless education, and can be considered as part of an emerging conceptual framework on successful eLearning, not at least from students' points of view and involvement.

Observations and reflections

A tangible result of the work carried out so far is the notion that a contextual perspective on all aspects of eLearning is of paramount importance and that the complexity of eLearning is significant. The ongoing discourse and debate also emphasizes the importance of taking into account a holistic thinking as well as the complexity of eLearning. A holistic approach in this context means that all included benchmarks in a model need to be seen together, that they influence and give consistency to each other. Among others Higgins *et al*. (2008) stress the complexity of strategic areas as important; structure, resourcing, decision-making, collaborating, outsourcing and selecting technologies.

The EU funded project Learnovation has recently published the report *Vision for Learning in Europe in 2025* (Aceto *et al*., 2010). The purpose of the project was to examine how learning is changing thanks to information and communications technology (ICT) and how such learning in turn favours innovation. The report discusses the future of learning in an innovation-oriented perspective. Proposals for urgent measures to be taken in order to achieve positive change in higher education were presented. These relate to lifelong learning and implementation of student-centered learning. They also stress quality and virtual mobility. Further, the needs for research on strategic integration of innovative learning and assessment, as well as new structures for quality assessment of higher education, were stressed. Bates (2010a, b) presents a framework on how higher education should relate to integration of ICT. The study was based on eleven universities in the U.S. and in Europe. Similar areas that we encounter in the benchmarking models and the current discourse were also found by him.

Bates (2010c) argues as well for a revolution in higher education and discusses his believes that 'revolution comes in developing flexible forms of delivery that combine face-to-face with online teaching in different ways for different kinds of students and different topics.' Revolution is needed in the way teaching and learning are organized and designed. Courses need to be designed so that they accommodate to the variable needs of different kinds of students. Courses need to be designed in such ways that students who want most of their learning in a classroom or on campus can get that, students who want some flexibility but are willing or able to come on campus for some time can get that, and those students who want everything online can get that. With technology to provide that flexibility this is and will be possible now. 'However', he says, 'that would be a revolution, because it would be a paradigm shift from current educational models.'

What has been distinguished so far is that universities and formal learning need transitions and other reconstructural structures in the 21st century. Wheeler (2010b) argues for the needs of transformation of educational practice through the application of new technology, creativity, and personalization of learning, described as 'three big guns that can be used in the battle against educational malaise'. First he discusses the concept education (from the Latin word *educere* which means to draw out from within, or to tap into someone's potential as such), which means "letting go" and not control. He continues: 'Education is not about punishment or reward. It's about creating environments in which students can best reach their full potential.'

Secondly, he emphazises that there is a need to know more about how technology can support formal learning in the same way as it supports informal learning. He argues for that 'new and emerging technologies (many students have them in their pockets or handbags but aren't allowed to use them in formal settings) can liberate learners by extending, enriching and enhancing learning opportunities.'

Thirdly, he wants to challenge the idea that one size fits all. He states: 'To stop managing learning, and hand more of the control over to the learner, teachers´ roles will need to change. They will need to become facilitators, mentors, participators in the community of learning, rather than controllers, lecturers, or managers. It's happening, but too slowly to cope with the pace of change we see in society.'

Personalization is, as mentioned above, one of the success factors for receiving the *E-xcellence Associates label* of EADTU. Wheeler (2010a) extends somewhat the meaning of personalization and emphazises personalization in terms of when the individual is her/his own personal learning environment (PLE) and is the owner of the learning process and environment. For higher education this interpretation will lead to challenges on how education needs to be reconstructed. The discourse shows clearly another emerging paradigm for higher education in order to meet those demands, which is focused on personalization, attractiveness and learning on demand in a lifelong learning context (Bates, 2010c; Bonk, 2009; McLouhghlin & Lee, 2008, 2010; Wheeler, 2010a,b).

An emerging conceptual framework

Throughout our survey and often exemplified in the current discourse and debate, certain concepts on eLearning/*blended learning* have become explicit. Even though the terminology might vary, the content seems to be similar. The frequency and the constant appearance of those concepts and their meaning constitute a foundation for formulating an initial conceptual framework regarding quality assurance of eLearning in higher education (Ossiannilsson & Landgren, 2010a, b). Like as in the symbol of a spidernet there are many threads which each one is needed, important and plays a special role, but they are all together needed in order for the 'net' to be meaningful, solid and sustainable (Figure 3).

Already four excellence criteria have been stated by EADTU through the *E-xcellence+* project, e.g. *accessibility*, *flexibility*, *interactiveness* and *personalization*. Those concepts were also applied in the benchmark project by ESMU *(ELBE)* and thereby confirmed as crucial. Personalization is also pointed out as crucial for quality in eLearning by McLoughlin & Lee (2008) together with *participation* and *productivity* forming *the three P:s pedagogy for the networked society.* Like EADTU Flate Paulsson (2010) emphasizes flexibility, but also *co-operation*, being close to participation. He also stresses *transparency* as a third factor for success in eLearning. All those concepts together might be seen as forming part of an emerging contextual framework for quality in eLearning in higher education.

The various concepts discussed above clearly give expression to the meaning of education from a student's points of view. It has recently been stated by Jaldemark (2010), among others, that in order to succeed and to reach the demands of students of today a *boundless education* must be strived for. eLearning/*blended learning* need to be embedded and beyond in all higher education, i.e. eLearning has

to be integrated, innovative and without limits. *Eco-Sustainability* seems to be basic in a *global perspective* today and therefore crucial in a society of the 21st century (Wheeler, 2010b).

Conclusions and further development

Going through the various benchmarking models much has been learnt on different approaches. Working with the concordance of the models has deepened the understanding of the importance of a holistic and contextual approach to eLearning and that current research and discourse ought to influence issues of benchmarking eLearning to a higher degree. During the processes as such it has been obvious that benchmarks have to be seen more from a student perspective and involvement and not as until now from more technical points of view and from university management levels. Although it has become explicit that strategic management, vision and leadership are crucial (Bates, 2010a, b), even those aspects have to be seen from the perspectives of students, teachers and universities.

Additionally, during the concordance process it was found that similar issues were articulated, but with differences in expressions regarding both languages and interpretations. Also cultural influences appeared. It became obvious, not at least going through the current discourse and debate on eLearning, that another paradigm ought to prevail in and for the 21st century. As stated above, a student perspective has to permeat benchmarks and indicators. Additonally, more contextual concepts have to be included, as suggested above, i.e. success factors as *personalization, interactiveness, flexibility, accessibility, participation, productivity, transparency, students rights* and *democracy* issues. As suggested by Jaldemark (2010), the meaning of a boundless education needs to be taken into consideration and to be implemented in institutions of higher education. eLearning/*blended learning* and the use of new technology, social media and Open Educational Resources will open totally new ways of education, and due to that universities need to go through structural and innovative changes (Bates, 2010c; Bonk, 2009; Ossiannilsson, 2010c; Ossiannilsson & Landgren, 2010a; Robinson, 2010).

Recently de Jonghe (2010), as many others, stressed that successful eLearning indeed requires new organizational and pedagogical models. She refers to the fact that traditional universities of today have so complex missions and are rather anxious to preveal the physical Campus as such, that this sometimes is in conflict with boundless education. Kolowich (2010) raises questions on what is the mission for Universities in the 21st century: are we striving for a local or global education? He argues for the latter, and for that a revolution is needed.

A conclusion from our current study is that a revolution actually is on its way. Networking, globalization, sustainability, student involvement and lifelong learning will be some of the leading stars in this process.

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Table 1. List of suggested benchmarks through the project the first dual mode distance learning benchmarking club.

Remaining critical success factors from *Pick&Mix*	***Selected from existing benchmarks from Pick&Mix***	**Added benchmarks suggested from LU through the project**
Strategic Management (former Management Style)	Accessibility	Constructive Alignement
Market Research	Benchmarking	Democratic Processes
Reliability	Computer Based Assessment	Legal Security
	Eco-Sustainability	Interactiveness
	Employability	Participation
	e-Portfolios	Productivity
	Information Literacy of Students	Services; Staff and Students
	Integration	Transparency
	Learning Material (former Learning Objects)	
	Library Services e-Resources	
	Organizational Learning	

	Pedagogy	
	Personalization	
	Plagiarism (former Plagiarism Avoidance	
	Quality Assurance	
	Staff Recognition and Reward	
	Widening Participation	

Park, Tom & Merwe van der, Antoinette: Can Higher Education virtual learning spaces be authentic places for open and lifelong learning? A South African perspective

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Abstract

Many South African Universities are currently facing the challenge to eliminate serious factors blocking access to higher education. Large proportions of prospective students need to overcome significant obstacles to participate in lifelong learning while pursuing a professional career. To address these access needs of prospective undergraduates and graduates by means of residential universities is not a realistic prospect.
At Stellenbosch University innovative approaches to seamlessly blend face-to-face and virtual learning spaces are considered to be an important solution to provide authentic places of higher learning. The University's integrated technology platform serves as a vehicle to provide stimulating and fully interactive higher education learning opportunities to a wide variety of communities in South Africa. Real-time interaction between the lecturer and students, which is one of the distinctive attributes of the platform, allows for the collaborative co-construction of knowledge. This unique technology platform deals with the African bandwidth constraints and capitalizes on the African growth in mobile subscriptions for synchronous one-to-many multi-media communication by means of satellite and mobile technology. Lecturers are also encouraged to complement the real time interaction with asynchronous web-based technology.

This paper outlines an institutional strategy to provide authentic learning places for formal and informal lifelong open and flexible learning by means of virtual learning spaces in collaboration with other higher education institutions and private enterprise. To achieve the institutional vision of making the University's more accessible, 14000 learners from underachieving schools in remote disadvantaged communities are supported in a virtual classroom to enter higher education successfully.

1. Role of Higher Education

In the past universities have been, and still continue to be, the main knowledge institutions of the modern state. Traditionally universities have been concerned principally with two main functions: research or the production of knowledge, and the dissemination and acquisition of knowledge (Peters & Roberts, 2000).

In the current global knowledge economy universities have been placed at the centre of economic development in most countries and have become the main providers of the skills and expertise necessary for the development of an information society and for the development of a critical mass of intellectuals and researchers (Malada & Netswera, 2008). This implies an expanding role for higher education, to include the provision of lifelong learning opportunities, crucial for preparing people to compete in the global economy and to function as value-adding members of their communities. There is a growing consciousness that above and beyond its core mandates of teaching, research and community outreach, Higher Education has a responsibility to develop the leaders and citizens of the future. In both mature and emerging economies, the role of the university is paramount in producing graduates who can think critically and who can solve the problems that face that country (HESA, 2008). Developing countries and countries with transition economies are at risk of being further marginalized in a competitive global knowledge economy if their higher education systems are not clearly focussed on equipping students with the skills they need (World Bank, 2003).

Bloom, Canning and Chan (2006) refer to the important role of higher education to make a necessary contribution to the success of national efforts to boost productivity, competitiveness and economic growth. Knowledge-based competition within a globalizing economy necessitates a reconsideration of the responsibility of higher education in development and growth. Higher education should therefore no longer be an expensive and even sometimes inefficient public service that largely benefits the wealthy and privileged. It must increasingly be seen as an indispensable instrument in the creation of wealth and prosperity in all communities.

A wide consensus already exists that investment in higher education has a significant positive impact on a country's GDP. Still relevant today is the essential insight highlighted at the World Conference on Higher Education Partners in June 2003 that at no time in human history was the welfare of nations so closely linked to the quality and outreach of their higher education systems and institutions than at the start of the 21st century. Perhaps even more significant, however, is the growing understanding that greater investment in higher education enhances the social cohesiveness of communities and stimulates the potential to contribute towards eliminating factors impeding social development such as poverty, crime and a general lack of security (HESA, 2007).

Access, however, is the fundamental challenge. Recently unions representing 150 million students worldwide expressed their view that global equality and prosperity could only be ensured through people having worldwide access to accountable, quality public services, including higher education. They called on leaders meeting at the G8 and G20 summits in Canada not only to meet the UN principle of equal access to free higher education but also to support education as a public good, and to chart courses towards a more equitable global economy and against poverty and global warming (University World News, 2010).

As higher education becomes more accessible to more populations of traditional and non-traditional students universities will have to adapt to the changes in societal needs, and will have to transform styles of pedagogy (Atkins, 2005).

2. African context

Many African Universities are currently facing the challenge to eliminate serious factors blocking access to higher education. Large proportions of prospective students living in Africa, especially those from remote areas, need to overcome significant obstacles in order to enter higher education. Many African students experience a typical residential university as literally beyond their reach. Elements of this barrier obstructing access to further studies include factors such as poor primary and secondary school education, insufficient funds, distance from higher education institutions, unreliable public transport systems, lack of on-campus student accommodation, problems related to their working environment such as the unavailability of study leave, family circumstances and the new emerging preference for postgraduate[116] students to engage in advanced studies through a learn-and-earn approach.

Although the wave of countries gaining political independence in Sub-Saharan Africa generated a dramatic increase in the number of universities from 52 in 1960 to more than 400 in 2000, many countries still have only a few universities with little diversity in institutional forms and functions. With university enrolment rates in sub-Saharan Africa that are among the lowest in the world, averaging 5%, the pressure for enrolment expansion is relentless (Sawyerr, 2008).

A significant conference entitled Africa's Regional Conference on Higher Education, held in Dakar in 2008, also fore-grounded numerous pressing challenges of which the low access to higher education was prominent. Furthermore, the poor participation rate in higher education is aggravated by a fairly low success rate and the fact that in many countries there is a persistent mismatch between the content of training programmes and the apparent needs of the market (MacGregor, 2009). Because of rising expenditure and shrinking budgets, many African universities have little capacity to offer innovative solutions for these challenges.

International economists have often considered the low participation rates in higher education irrelevant to Africa's development and have in the past advised African governments to reduce their spending on advanced education opportunities. This unfortunate guidance was probably unaware of the strong correlation between university enrolment rates and national income. By far the majority of high-income countries have university enrolments of more than 50% (AfricaHigherEducation -at-huarp -dot- harvard -dot- edu). There is evidence available that supports the idea that expanding tertiary education may promote faster technological catch-up and improve a country's ability to maximize its economic output (Bloom et al., 2006).

In many African countries the so-called "digital divide" is still very much a reality. It remains a barrier that may deflect the potentially transformative application of specifically web-based technology to

[116] Also referred to as graduate or advanced studies.

increase access to higher education opportunities. In this regard, the International Telecommunication Union (ITU) provides a useful ICT Development Index (IDI). The IDI includes ICT infrastructure and access, ICT use, including the intensity of use, and ICT skills, making comparison between regions possible (ITU, 2010). According to this index, Africa ranks the lowest by geographic region. According to the report, this is mainly as a result of low fixed broadband (specifically ADSL) development. Mobile broadband access, albeit in its initial stages, is identified as showing faster growth than fixed broadband access (ITU, 2010). Mobile cellular penetration in developing countries, although still significantly lower than developed countries, has also more than doubled since 2005 to reach an estimated 57 per 100 inhabitants at the end of 2009 (ITU, 2010). The report concludes that mobile access may therefore be Africa's most promising broadband access technology for the future (ITU, 2010).

A further potential barrier with regard to the use of educational technology is the so-called "price divide". According to the ITU's ICT price basket, the cost of high speed broadband Internet may also be prohibitive and beyond the reach of many communities when expressed as a percentage of the monthly GNI per capita – as much as 482,8% of the monthly GNI per capita. Although the mobile sub-basket still remains more expensive in Africa than in the rest of the world, almost 17% of the average monthly income, an encouraging trend is that the mobile basket dropped by 25% from 2008 to 2009 (ITU, 2010). A key implication of this digital and price divide is that one has to consider extremely carefully the types of technologies used in higher education if an institution aims to increase access to and widen African participation in higher education.

Both the digital and price divide barriers isolating large parts of Africa from the broadband revolution may however soon be eliminated by undersea fiber-optic cables that connect Africa to the global networks. A fiber-optic backbone for Africa will open up unprecedented opportunities at a fraction of the current cost of access to information. Submarine cables like Seacom, EASSy (East African Cable Submarine Cable System), WACS (West Africa Cable System) and ACE (African Coast to Europe) will offer very high bandwidth which will enable African countries to share in the opportunities offered by the new global information technology systems (Song, 2010).

3. South African Context

In South Africa opportunities for entry into higher education have significantly improved since the new political dispensation in 1994. The student participation rate of the 18 to 24 age cohort has increased from 14% to 18% pushing the total headcount enrolments from 590 000 in 1996 to nearly 800 000 in 2008. The participation rates of students from previously disadvantaged communities, however, are still too low. The sheer inaccessibility of universities to school-leaving students especially those candidates from disadvantaged communities may have a decisive negative effect on their interest in further studies (Cosser, 2009). The higher education sector has been challenged to achieve a 20% participation rate by 2016.

The inadequate higher education infrastructure which cannot accommodate the growing demand

for advanced learning opportunities makes it imperative for educational planners and higher education institutions to establish alternative access routes to higher education as well as networks of academic support. Although there is a growing consensus that one of the most obvious solutions is the utilization of ICT, there is often still a failure to recognise the influential role that ICT can play in the provision of additional high quality study places. Even prominent academic leaders of the South African higher education system still think in terms of brick and mortar solutions for the country's pressing needs to widen opportunities in higher education (MacLeod, 2008). ICT creates innovative communication structures that enable novel environments for the core functions of higher education. These new environments can augment what universities have historically done well by offering new possibilities to meet the changing societal needs and realities (Atkins, 2005). To achieve major breakthroughs in the enhancement of core mission elements such as access, affordability and quality it is essential to combine process redesign and the advantages that technology applications can offer (Abel, 2007).

During a meeting with the Ministry of Higher Education and Training in January 2010 Stellenbosch University along with the other 22 universities in the public South African higher education system collectively committed themselves to facilitating increased access to higher education and to ensure that it remains affordable for most individuals and families (HESA, 2010).

4. Stellenbosch University

a. Vision-aligned technology applications

Stellenbosch University (SU) lies in the picturesque Jonkershoek Valley in the heart of the Western Cape Winelands and is recognized as one of the four top research universities in South Africa. It takes pride in the fact that it has one of the country's highest proportions of postgraduate students of which almost ten percent are international students. In a recent independent comparative study of South African universities Stellenbosch was classified as the leading South African university based on two sets of criteria dealing with research outputs and the effectiveness of the institution (Finweek, 2010).

The current institutional positioning is guided by the vision to be a 21st Century University that performs the role of a true knowledge pioneer for a pedagogy of hope for Africa and beyond. In particular, SU is taking a leadership role in the building up of a knowledge economy in the country. This vision is explicitly aligned with the Millennium Development Goals to demonstrate the University's commitment to be a significant role player in working systematically to achieve major national and international socio-economic goals, such as the eradication of poverty; promoting peace, security and stability on the African continent as essential preconditions for optimal development; the improvement of the physical and psychological circumstances of people in general and the development of democracy (Botman, 2007).

There is a strong institutional consensus that the strategic vision to enhance and extend advanced learning opportunities can be attained through an appropriate technology platform. In the

endeavour to create effective virtual learning spaces the two main attributes of mobility and reachability are given prominence to enhance “anytime” and “anywhere” access to higher education (Kim et al., 2006). The use of modern technologies is thus aligned to, and often strongly intertwined with, the strategies and methodologies selected to deliver the intentions set out in the University’s Vision to make the University more accessible and academic success more attainable for those postgraduate students who currently need to overcome significant obstacles in order to enter higher education. Central to the endeavor to shape an information society the University strives to remain flexible enough to respond to the ensuing social demands and technological change (Scott, 2006). It is strongly believed that technology-enhanced education is a significant tool to improve the flexibility and quality of the South African higher education system in order to accommodate new groups of learners, such as adults and those who are already employed, and effectively integrate further study with their professional working environment (Vossensteyn et al., 2007). These students, referred to by Hilary Perraton (1997) as “virtually wandering scholars” who are often not bound by geographical regions, look certain to become a significant sector of the University’s clientele.

For this purpose the Division of Telematic Services (DTS) was established to create and maintain an integrated technology platform to enable students to overcome the barriers of geography, time and cost that might prevent access to higher education. The DTS’s focus is to create innovative access routes to promote participation in higher education based on increasing the virtual mobility of postgraduate students.

b. A blend of learning opportunities

To increase access to the postgraduate academic offering of Stellenbosch University a “brick and click” model is preferred, i.e. combinations of residential contact teaching (brick) and electronic contact and interaction (click) with the focus on optimal service delivery to different target groups. The blend of brick and click varies depending on situational factors.

The challenge remains however not only to widen access to the postgraduate programs of Stellenbosch University but to ensure that the richness of the learning experiences offered on the technology platform enhances successful study. The potentially transformative role of digital technologies in terms of the so-called “reach (number of people involved in the exchange of information) and richness (overall quality of information)” debate, challenges institutions to focus not only on the increased “reach” but also on “the opportunities for enhancing the richness of students’ educational experiences” (Weigel, 2000).

The creation of innovative and flexible social learning spaces through knowledge media often necessitates a different relationship between student and teacher (Breslow, 2007). Recent literature on contemporary pedagogy strongly argues that pedagogical practices based on interactive, problem-based, technology-enriched teaching and learning are often the preferred methodologies to prepare students for the increasingly complex and interconnected global society in which they are going to live and work (Moore et al., 2007). Socially based tools and technologies are capable of supporting informal conversation, reflexive dialogue and collaborative content generation. If used correctly these tools can straddle multiple real and virtual learning spaces independent of time,

place and organisational boundaries (McLoughlin & Lee, 2010). By influencing the shift away from passive learning to more active learning pedagogies in which students construct their own knowledge, the education approach moved away from the traditional transfer of knowledge across the lectern. The direct implication is that the technology platform should not be used as a device to automate information transmission but should actively contribute to students' collaborative and guided construction of meaning (Albrecht, 2006).

c. The technology platform

i. Purpose of the technology platform

The commitment made in the Stellenbosch University's vision to perform the role of a reputable and genuine knowledge partner places a responsibility on the institution to provide a variety of effective formal and informal learning opportunities in the core institutional operational areas, such as high level research initiatives, excellent academic programmes and relevant community engagement projects.

This technology-enhanced approach strives to transform the conventional higher education environment into an effective ICT supported learning environment that blurs the customary divides between real and virtual educational opportunities. The ultimate goal is to transcend the traditional impermeable boundaries that exist between on-campus face-to-face and off-campus virtual learning spaces to create authentic learning experiences ranging from the formal postgraduate academic programmes to a variety of informal short courses aimed at capacity building in different contexts.

ii. Integrated technology design

The DTS is placing an emphasis on using the advantages of different types of technologies to support postgraduate students more effectively and promote access more successfully. Lecturers are encouraged to use a blend of face-to-face interaction with a continuum of technology-enhanced learning opportunities that range from synchronous interaction (satellite-based technology, mobile and web-based messaging) to asynchronous interaction via the web-based discussion groups. In this way lecturers can improve connectivity with students through broadcasts but at the same time provide continued support and tracking via web-based interaction.

In Southern Africa where cable and broadband internet protocol television are not yet well developed, the obvious choice for one-to-many multi-media communication is by means of satellite delivery. To deal with the current African bandwidth constraints and capitalize on the opportunities provided by the African growth in mobile subscriptions, the University has therefore designed a unique satellite-based technology platform in conjunction with mobile, smart card and web technology as a vehicle to provide stimulating and relevant higher education learning opportunities, particularly postgraduate programmes, to a wide variety of communities in Southern Africa. This combination of technologies creates a learning environment that provides for both synchronous and asynchronous learning opportunities.

iii. Synchronous learner participation

The telematic system consists of an on-campus studio, twenty remote learning centres situated all over South Africa and one centre in Namibia. Together these create a virtual learning environment to support synchronous teaching and learning opportunities for postgraduate students spread across a widely dispersed geographical area. A further 175 remote venues of private clients are linked to the system.

From the studio on the Stellenbosch campus, lectures are broadcast to the learning centers or remote sites. The transmission service including both ground and space segments is provided by Telkom-SA by means of a Ku-Band earth-station which uplinks a single channel per carrier onto Intelsat-12 at 54°E with spot-beam coverage of Southern Africa.
Presentations can be done from either a formal or an informal set in the broadcast studio. The studio and control room are equipped with modern television equipment including audio and video machines, basic editing equipment for recording and editing, video mixers, four standard television cameras, a multi-media computer to display computer applications (e.g. Powerpoint slides, video clips) and a monitor for displaying photos of the students as well as their names and contact details that are automatically extracted from the University's student information system. Student responses to questions and their comments sent via computers or cell phones are also displayed on the monitor.

Students use mobile technology (GSM and GPRS) or connect via web applications to interact in real time with the lecturers in the studio. Text messages are sent via an "SMS-to-web" gateway service by means of a designated 5-digit short code number. These messages are relayed via the cell phone network to the gateway operator by means of a standard messaging protocol and are posted on a dedicated web site via http protocol.

Students log in for each session by means of a specially designed web page or by swiping their proximity student cards over the card readers in the learning centres or by entering their student numbers on their own cell phones, of which the numbers are captured on the system, and text this information to the provided short code number. By doing so an attendance register is electronically compiled. Immediately after login the student's name and profile will appear on the lecturer's console in the studio. This detailed contact information of each student can be used for voice calls and/or SMS messaging through click-and-call and click-and-send facilities.

Students who wish to ask a question during the presentation can enter the letter H (Help) on their cell phones and text this via the short message service to the five-digit short code number or by swiping a Help Card over the card reader. These attention requests are registered on the lecturer's console and can then be attended to by means of a click-and-call facility whenever the lecturer is ready to respond. Likewise students may text messages to the lecturer or enter the question on the web page. These will also appear on the lecturer's console to be dealt with at an appropriate time during the lecture.

Both the cell phone and web-based synchronous interaction (students logged in, messages sent, votes cast) can be e-mailed as files to the individual lecturer after the broadcasts as a record of

attendance as well as questions that can further be addressed during asynchronous interaction between broadcasts. In this way a complete record of student participation is captured.

All broadcasts are recorded on DVD and if the transmission should fail to a specific centre, for example as a result of inclement weather, the students at that specific centre will then receive DVD's at no cost. Students can also order DVD's of the broadcasts via a web-form if they were unable to attend a specific broadcast or if they want to use the DVD as revision material.

iv. Asynchronous learner participation

For asynchronous interaction between broadcasts a web-based Learning Management System is used for making a variety of learning activities and learning resources available to students, as well as for the tracking and assessment of students.

This blend of activities is complemented with other existing online services for off-campus postgraduate students to enrich their postgraduate studies. These include online academic counselling and career guidance offered by the Centre for Student Counselling and Development, programmes focused on the improvement of writing skills presented by the Language Centre and access to the library services, including access to the over 70 000 journals and almost 450 databases.

Postgraduate students currently have access to all of these services via the student web portal. The DTS collaborates with relevant service divisions and academic departments to ensure that the needs of postgraduate students are accurately articulated and to provide for the whole "life-cycle" of the postgraduate student from potential prospective student to successful graduate.

d. Indicators of authentic learning places for open and lifelong learning

According to the Oxford Advanced Learners Dictionary the word authentic means *known to be real and genuine*, *not a copy, true and accurate, made to be exactly the same as the original*. In the context of this paper, authentic virtual learning spaces refers to a technology-enhanced environment that promotes real and valid teaching and learning experiences not restricted by geographic, institutional, physical and organizational boundaries, created as an alternative for face-to-face education. Within this semantic framework, the restraining orthodox notions of time, space and place become less prominent and even the notion of distance education inappropriate. Fundamental to this approach is not only to be more inclusive by widening access to higher education but also to ensure that the richness of the learning experiences enhances successful study.

The paper poses the question: Can Higher Education virtual learning spaces be authentic places for open and lifelong learning? To determine whether the virtual learning spaces created on the telematic technology platform are authentic places of open and lifelong learning, valid indicators should preferably be selected against the background of the institutional context and vision. Within this milieu the most obvious indicators should be the extent to which the platform delivers on both reach (number of people enabled by the technology platform to benefit from the academic programmes and short courses of the University) and richness (overall quality of the learning experience).

In using the indicators to appraise the authenticity of the virtual learning spaces evidence is drawn from the results of an analysis of the cohorts of learners who benefit from the virtual learning spaces, to assess access. Information regarding the success rate of students as well as the feedback from students, lecturers and other learners who were supported by the platform is used to assess the richness of the learning experiences.

i. Widening access (Reach)

Although Stellenbosch University is a typical South African residential institution an analysis of the residential postal codes of the national postgraduate students reveals that the technology platform enables students spread over a wide geographical area in South Africa to enrol for advanced programmes of the University. In 2010 2300 students obtained access to the University's postgraduate programmes by means of the technology platform. The 49.7% increase in the enrolment on the telematic platform over the last five years resulted in a significant increase in the number of students enrolled for advanced programmes of the University. 22% of the current postgraduate students representing 33 nationalities are utilizing the virtual study spaces provided by the University's technology platform. These students would otherwise not have had the opportunity to enrol for advanced studies at one of the leading research universities in South Africa.

By widening the participation of geographically dispersed students the technology platform also makes a huge contribution towards the realization of the University's diversity goals in that 82% of the 2010 enrolment on the telematic platform can be categorized as generically black students. Just more than 39% of the total generic black students registered for Masters, Honours and Postgraduate Diplomas at the University are accommodated on the telematic platform.

A very encouraging trend is that there is also an increasing female participation in the postgraduate programmes offered on the technology platform. Currently nearly 70% of the cohort of students supported on the technology platform are female. In terms of age, the majority of students are between 30 and 49 years old, a fact which demonstrates the growing need for lifelong learning opportunities.

In response to the South African Council on Higher Education's (2010) call to make expertise and infrastructure available for community service programmes and to fulfil the University's responsibility to be an effective role player in the building of the capacity of communities, spare capacity on the platform is made available to other Higher Education institutions, private companies, welfare organisations and community trainers to offer social upliftment programmes.

Private companies, such as MediClinic (healthcare), EduReach (legal short courses) and Moonstone (financial services), are increasingly making use of the telematic facilities to establish cost effective and targeted communication networks within their respective environments. The telematic platform is also made available to welfare organisations and community trainers to deliver services to communities. One notable example is the National Institute for the Deaf that broadcasts a programme on public education and awareness of disability.

The inability of the school system to produce sufficient numbers of academically prepared entrants into higher education is regarded as one of the major constraints to the achievement of the targeted 20% participation rate by 2016 (HESA, 2008). To improve school education, SU currently makes available spare capacity on the technology platform to support the school system in a variety of ways.

The Western Cape Education Department's Quality Improvement, Development, Support and Upliftment Programme requested Stellenbosch University to support them to provide quality educational opportunities to Grade 12 leaners of underperforming schools who are preparing for the final school examinations. A pilot project commenced in July 2009 to provide additional learning support in five key subjects to about 3000 Grade 12 learners in ten schools in the Western Cape. Based on the success of the pilot project, the project has been extended in 2010 to a further 110 schools in some of the most disadvantaged communities in the Western Cape to provide support to about 14 000 learners in six subjects, i.e. Mathematics, Accounting, English First Additional Language, Physical and Life Sciences and Afrikaans home language. The necessary infrastructure (e.g. satellite dishes, decoders) was installed at the schools to make the broadcasts possible. The Khanya computer labs in the schools are being used for the broadcasts to make the web interaction possible.

The DTS is responsible for the creation of the virtual classroom mainly by providing the television studio from where, in the current year, more than a hundred hours of satellite broadcasts to the schools will have taken place. During the broadcasts synchronous interaction between the teachers and learners occurs via a web interface and mobile technology. Asynchronous interaction between broadcasts is enabled via a web based discussion forum. The 35 teachers identified by the WCED to do the broadcasts were trained by the University to use the technology optimally. As with all broadcasts, DVD's are made of these broadcasts and distributed to the schools as additional learning resources.

The telematic platform is also used by the The African Institute for Mathematical Sciences and Institute for Mathematics and Science Teaching collaborative project. The project aims specifically to support school partnerships in relation to completing formal programmes (such as an Advanced Certificate in Education) focused on the needs of practicing teachers as well as credit bearing short courses for teachers. In this way new opportunities open out for teachers from previously disadvantaged communities in all areas of South Africa to study at Stellenbosch University.

This results of this analysis of the client profile served by the technology platform demonstrates the extent to which the reach of the University has been increased. Not only does it make the University more accessible to all South Africans but it has also widened the participation of students in the postgraduate programmes of the University that were previously largely excluded from higher education. Similarly, the availability of community outreach/service programmes on the technology platform has also increased the reach of the University by providing a platform for informal lifelong learning opportunities for all South African communities. This has allowed the University the opportunity to contribute to building the scientific, technological and intellectual capacity of Africa and to become an active role-player in the development of South African society.

The reach is further enhanced by the relevance of both the informal and formal programmes offered on the technology platform. These are not only aligned with the institutional commitment to focus on the Millennium Development Goals but are also addressing some of the prevalent South African challenges. The programmes in for example Health Sciences, HIV/Aids management, Public Management and Local Governance and Education create the necessary leadership capacity to provide sustainable health services to all communities, to manage the devastating effect of the HIV/Aids pandemic, to establish direction on third level government structures and to restructure the underperforming South African education system.

ii. Quality of the learning experience (Richness)

A postgraduate student survey was done in November 2009 to assess the students' satisfaction with different elements of the telematic platform, including the application and registration process. A very good response rate of 69% was achieved. The following selection of results may be used to assess the richness of the platform.

The students expressed a high degree of overall satisfaction with the application and registration processes, with more than 82% of the respondents either agreeing or agreeing strongly that the application and registration processes were both effective and user-friendly. The University regarded these positive results as very encouraging because effective application and registration processes from remote sites are important prerequisites and key elements in the creation of authentic virtual learning spaces.

The majority of the students indicated that the two main factors that influenced their attendance of the broadcasts were that their attendance helped understanding (indicated by 72.1%) and that students valued the interaction with fellow students (indicated by 66.6%). The students' response that the participation itself contributes positively to their collaborative and guided construction of meaning clearly points to the value of the interactive nature of the platform as opposed to whatever value they attach to the utilization of technology to transfer information.

The students' experience of the richness of the learning experiences offered on the technology platform were also assessed by means of questions regarding their preference for more broadcasts and their overall satisfaction with the technology platform. More than half of the students (56.7%) indicated a preference for more broadcasts and a further 39.6% were satisfied with the same number of broadcasts. When disagreggating these responses according to the academic programmes, there was a correlation between the programmes where there were fewer broadcasts and the students who indicated that they wanted more broadcasts and similarly between the students who indicated the "same number of broadcasts" and the programmes that seem to have an optimal number of broadcasts. Overall, however, the majority of the students (75.2%) indicated that they experienced the broadcasts as positive or very positive. It is futher encouraging to note that the students are not only satisfied with the richness of the study environment but that there is

also an increasing success rate in terms of the completion of their academic programmes. During the period 2004 to 2009 the graduation rate[117] of the students improved with 16%.

A similar lecturer survey was done in December 2009 and January 2010 with a response rate of 60%. The lecturers' feedback on the technology platform is also a very important indication of whether the virtual learning spaces created on the telematic technology platform are authentic places of open and lifelong learning.

The lecturers indicated that they use the broadcasts mainly to discuss key and potential problematic concepts (89.7%), to solicit student interactions (82%) and to support the students with the final assessment (86.9%). This feedback confirms the potential value of the platform in that it allows for real-time interaction between the lecturer and students. This learning environment that promotes adult learning in a higher education context makes the collaborative co-construction of knowledge possible through formal and informal conversation, reflexive dialogue and mutual content production.

More than half (56.3%) of the lecturers indicated that they would prefer to do more broadcasts while 34.2% indicated that they prefer the same number of broadcasts. As with the student responses, there was again a correlation between the lecturers' responses and the number of broadcasts of the specific academic programme.

With regard to the overall experience of telematic broadcasts and services, 87.9% of the lecturers indicated their experience as positive or very positive with the remaining 12.1% assessing it as average. These responses from the lecturers clearly indicate that they do experience the telematic technology platform to be very valuable in the support of their students.

Very positive feedback was also received from the teachers, presenters, learners and school principals who participated in the pilot project of the Western Cape Education Department. Although improved results cannot necessarily be attributed solely to one specific intervention in the face of the large number of variables that impact on the results of different schools, there were many reports of improved outcomes which principals of the schools involved attributed to the telematic support provided to the learners during the pilot project. Some of the other positive outcomes reported include wide-ranging factors such as an improved culture of learning in schools, enriched learning experiences, improved relations betwen educators and learners, a deeper understanding of problematic subject concepts, boosted confidence of learners and educators, increased interactivity in the classroom, enhanced self image of the learners and improved parent involvement in the education of their children.

[117] Graduation rate is the ratio between the number of students that has obtained a qualification and the number of students that was enrolled for programmes offered on the telematic platform.

5. Conclusion

Based on the selected indicators, i.e. reach and richness, to assess the authenticity of the virtual learning spaces it can be concluded that the University's telematic platform can contribute towards creating a technology-enhanced environment that promotes real and valid teaching and learning experiences not restricted by geographic, institutional, physical and organizational boundaries as an alternative for face-to-face education. Not only does the platform successfully offer learning opportunities to a spectrum of learners ranging from advanced postgraduate students to school learners in underperforming schools, but in all cases overwhelming positive feedback was received on the value of the virtual learning spaces in promoting knowledge construction. In all these cases residential education would have been a far less attainable option.

The potential benefits of the rapid development of ICT for enhancing the quality of open and flexible learning can only be realized with adequate connectivity to the online world, which requires the availability of ICT infrastructure (Maastricht Message M-2009, 2009).

With the new opportunities afforded by the availability of broadband internet as a result of the Seacom cable that is already benefiting South Africa and the numerous other undersea optic fiber cables that will reach the Southern tip of the African continent in the immediate future, Stellenbosch University is ideally positioned to further develop flexible and authentic virtual learning spaces for open and lifelong learning.

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Read, Timothy & Bárcena, Elena & Pastor, Rafael & Vega, Jorge & Ros, Salvador & Rodrigo, Covadonga & Hernandez, Roberto & Vindel, José Luis : AVIP-PRO: Oral Training and Evaluation Tool for e-Learning in the UNED

UNED

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Abstract

As Internet access has improved it has become easier to access audio and video recordings online. While this is an effective way to expand our knowledge, albeit somewhat "passively", it does nothing for the development of production and interaction competences and skills, and the communicative functions involved (defence, argumentation, persuasion, reasoning, justification, etc.) in real-time and real-world scenarios. The AVIP (Audio-Video over Internet Protocol) tool was developed in the UNED to permit a wide range of online video-conferencing techniques to be combined with smart-board equipped classes and digital repositories to provide interactive taught classes to a large number of students (those actually in the class, those connecting online, and those who access recordings of the sessions). The new AVIP-PRO enables video recordings to be made online without having to be in a moderated AVIP session and is integrated in the UNED e-Learning platform alf/dotLRN. It has been designed as a didactic tool for multiple functions, namely the training of specialized oral discourse (of particular relevance in disciplines like Law and Business), real-time oral evaluation (fairly common in face-to-face institutions with a reasonable student-teacher ratio) and training and evaluating second language oral competences online. Language learning tasks can be prepared where students undertake any kind of online oral communication and training, combining the flexibility of the AVIP framework together with the task-based structure of aLF. Institutionally, the tool is scalable and can be managed from within aLF as a standard task type enabling large-scale training and evaluation to be undertaken.

Introduction

The UNED is the largest public distance education university in Spain (in existence for more than 30 years) with over 200,000 students, 1400 lecturers and 2000 administrative staff. There are currently over 70 of these study centres distributed throughout Spain and Europe. As well as the lecturers the university also has 6900 tutors work in these study centres. During the last decade there has been a noticeable change in the way in which students undertake their learning, specifically the use they

make of Internet and the Web, as a way to access the educational resources they need (both materials and people). This change, together with the fact that students also don't want to physically attend classes so much any more, has given rise to the concept of virtual attendance within the UNED (Read et al., 2009).

Virtual attendance is a concept that comes from the application of the the AVIP (Audio-Video over Internet Protocol) tool (Rodrigo, et al., 2010), which was developed in the UNED to permit a wide range of online video-conferencing techniques to be combined with smart-board equipped classes and digital repositories to provide interactive taught classes to a large number of students (those actually in the class, those connecting online, and those who access recordings of the sessions). Since the start of this project, there are now over 300 AVIP enables classrooms in Spain.
The new AVIP-PRO represents a variation in the standard version of the tool to enable video recordings to be made online without having to be in a moderated AVIP session. This gives rise to a tool that has been coupled to the UNED's e-Learning platform alf/dotLRN (Pastor et al., 2007), which can be used as a didactic tool for multiple functions, namely the training of specialized oral discourse (of particular relevance in disciplines like Law and Business), real-time oral evaluation (fairly common in face-to-face institutions with a reasonable student-teacher ratio) and training and evaluating second language oral competences online.

ORAL Examination using the AVIP-PRO

Until the AVIP-PRO was developed for distance language learning courses in the UNED, there has essentially been little or no oral training and testing in online courses. In institutions with small numbers of students actual face-to-face oral evaluation can be undertaken, and in distance education, the telephone had been used for such purposes or even Web-conferencing tools like Skype. However, as the number of students rise and synchronous evaluation is not possible, it was necessary to develop a tool that enabled tasks to be prepared where students could undertake any kind of online oral communication and training, combining the flexibility of the AVIP framework together with the task-based structure of aLF. Institutionally, the tool is scalable and can be managed from within aLF as a standard task type enabling large-scale training and evaluation to be undertaken. Such an integration facilitates interoperability (Read et al., 2003).

The AVIP-PRO is built on the AVIP level 2+ architecture, which was developed as a web-based conferencing tool built around Flash technology. It enabled users to connect together (and to a AVIP level 1/1+ service) from a standard web browser, sharing a simulated desktop environment where presentations can be used as a backdrop for an interactive video class (enabling the speaker to annotate the presentation or add any other details). Control is required for user participation (the same phenomena is present in face-to-face classroom teaching), to prevent everyone from speaking at the same time. Someone, typically a lecturer or tutor, defined as the moderator and could talk, control the presentation, and let other members of the group speak. In a similar way to the AVIP level 1 and 1+, the sessions are recorded for future use. As well as its application for standard distance education taught classes, the AVIP level 2+ is also very useful for a lecturer (or tutor) to

record small video fragments illustrating some concept related to a course s/he teaches (where no other users are present in session), which can be recorded and left for student use. For example, lecturers on language courses, where students need to learn how to speak in a foreign language, can record fragments of them speaking in that language, illustrating the concepts the students are currently learning. In the AVIP-PRO, the moderating role has been removed so that any authorized student can connect to the tool, follow the instruction for a given test, and undertake the audio/visual recording for subsequent review and correction.

The presentation and control of the task that the student has to undertake comes from the e-Learning platform in which the tool is installed. In this case it is the aLF platform, which is the result of research and development undertaken in the School of Computer Science of the UNED. It has been built over the enterprise information system dotLRN. As such, it is robust and scalable, and is actively used by more than 150,000 people. Over the last couple of years it has been modified and extended to be prepared for use in the EHEA (Pastor et al., 2007). As part of this work, both the general AVIP and also the AVIP-PRO tools have been integrated. The AVIP level 2+ tool can be accessed from within a course in aLF (for synchronous communication), should a lecturer or tutor wish to have a virtual meeting with the students, or to prepare a small video fragments (where no other uses are present in the session). Only a lecturer or tutor is able to do this (no students are currently able to reserve sessions).

The use of the AVIP-PRO within aLF has three roles associated with it: firstly, as a lecturer or person responsible for setting up the task to be performed and evaluated. Secondly, as a student, who will undertake the activity, and thirdly and finally, as a tutor or person who will undertake the evaluation. This process is detailed next.

Firstly, once a lecturer has logged onto the e-Learning platform aLF, s/he is able to specify that a new AVIP-PRO task is required for the students on a particular course. Once this has been selected, the interface shown in figure 1 is presented:

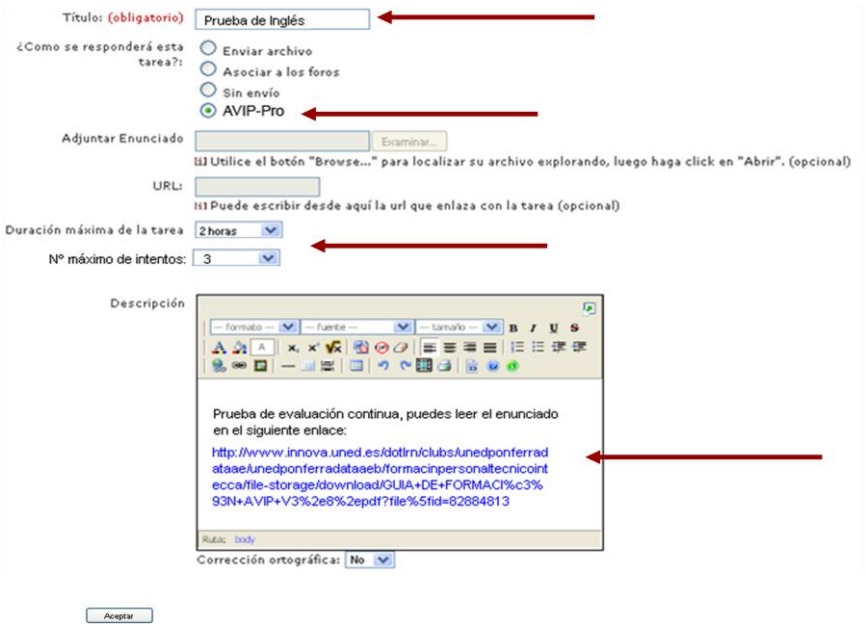

Figure 1. AVIP-PRO Task definition interface

A title has to be given for the task together with a description of what has to be undertaken (which can be a textual description or a URL to an external Web page or file). A maximum duration can be defined for the task, which is useful to limit the actual size of each recording. Given the often very high student numbers in a given course, such control is very important to prevent the available storage space from being used up. The number of attempts a student can use to undertake a task is also defined. Once a recording has been made a student can revise the work and if s/he is not happy with the result, it can be repeated, depending upon the number of times that are allowed. It should be noted that given the flexibility of the general task interface in aLF, not a lot of modification was actually required for the new AVIP-PRO task. Once the task definition is finished, the new task is available for students to use, as can be seen in figure 2.

Figure 2. Example of a link to the newly defined AVIP-PRO task

Secondly, a student in a course where an AVIP-PRO task has been specified will have access once s/he has logged onto aLF. One key problem that has had to be solved was that of identification of a given student in a given task (evidently having the login and password are not sufficient). Initially several different approaches were considered and after analysis, sophisticated forms of control were ignored in favor of the use of a student's national identity card. Hence, at the beginning of a session, the student has to present the ID card to the Web cam on his/her computer, whereupon a copy is made and merged into the video stream during the recording. This is similar to the way in which an ID card is used in face-to-face exams (where it has to be displayed at all times). This can be seen in figure 3.

Figure 3. Example of the display of a student's ID card during a session

As can be seen in figure 3, when the system is recording the student, a red button is available to stop the session if the student wishes to do so. Once the time specified for the session is up, the recording finishes anyway. Once the session has finished, the interface shown in figure 4 appears, and the student has the option to cancel the recording, review it or submit it as the result of the task, whereupon a link to it is stored in the e-Learning platform aLF.

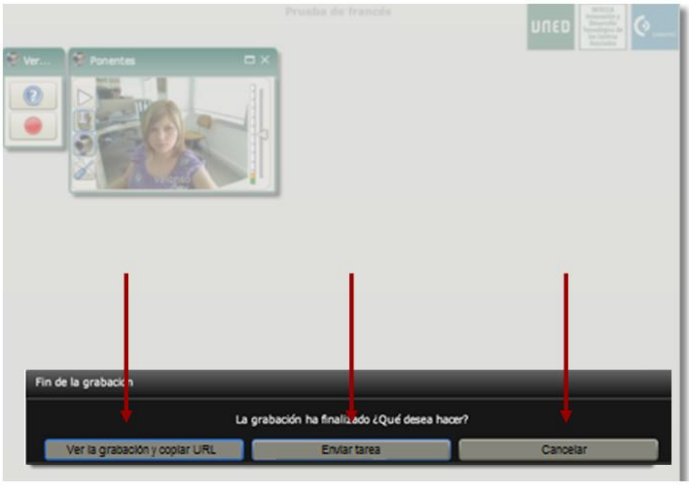

Figure 4. Available options once a recording has been finished

Thirdly, and finally, the tutor or the person who will evaluate the students' recordings, one logged onto aLF, can see the task to be corrected, as per any task in aLF, in the interface presented in figure 5.

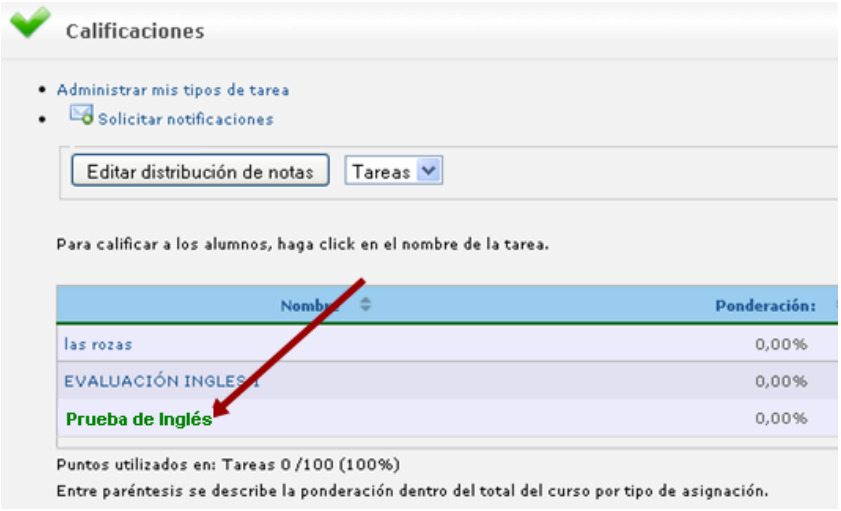

Figure 5.

Once the task to be evaluated has been selected by the tutor a new interface is presented where the students are divided into three groups: ones that have been evaluated for this task, ones to be evaluated, and ones that have not actually done the task. As can be seen in figure 6, once the tutor selects the students to be evaluated, they are listed with links to their recordings, a numeric box where a grade can be given and a comments box so that feedback can be given as well. This interface is also available to the lecturers so that they can review the evaluation process and the marks given by the tutors to the students.

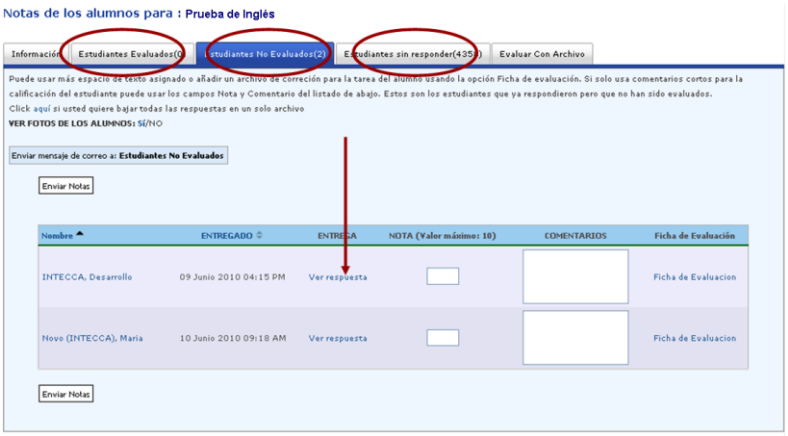

Figure 6. Correction interface for submitted work in aLF

The AVIP-PRO has been tested now on different language courses with no problems and will be used in the new Bolognia degrees that start in the UNED in September[118] 2010, and when the oral test is included into the Spanish university entrance exams, it will likely be used as well.

[118] A wide range of thes degrees also started last September.

Conclusion

This article has presented the technological infrastructure underlying the new AVIP-PRO tool that has been developed to enable tasks requiring oral production to be undertaken by students online in a scalable and robust fashion. Furthermore, since this tool is based upon the AVIP system, the students are very likely to have had some experience of using it before undertaking any oral task or exam that makes the whole process easier for them. It also provides a good solution for tutors who would have to evaluate a large number of students. Previously they would need to organise face-to-face sessions in the UNEDs' regional study centres and now they can work completely online.

As has been shown in this article, the AVIP-PRO, integrated in the UNED e-Learning platform alf/dotLRN, represents a didactic tool that can be used for multiple functions, namely the training of specialized oral discourse (of particular relevance in disciplines like Law and Business), real-time oral evaluation (fairly common in face-to-face institutions with a reasonable student-teacher ratio) and training and evaluating second language oral competences online. Furthermore, language learning tasks can be prepared where students undertake online oral communication and training, combining the flexibility of the AVIP framework together with the task-based structure of aLF.

Future work for this project will centre around the use of mobile devices and particularly devices where Flash is not available in the client (like the iPad). Furthermore, the possibilities to connect it to other test and evaluation software is being studied.

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Rühl, Paul: Brick-and-Mortar Universities Cooperate in Online-Teaching – The Experience of the Bavarian Virtual University119

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Abstract

The Bavarian Virtual University (BVU, Virtuelle Hochschule Bayern; **www.vhb.org**) is an institute set up in 2000 by the nine universities and the 17 universities of applied sciences of the Free State of Bavaria. Like its member universities, the BVU is financed predominantly by the Bavarian Ministry of Higher Education (Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst). The BVU provides online-courses with an equivalent of two to six credit points (by ECTS) which the member universities can integrate into their courses of study. The BVU helps its member universities to enlarge and enrich their programmes, and it helps the students to organize their studies in a more flexible way.

Today, in the BVU there are more than 65,000 course enrolments by more than 25,000 individual students per academic year. For the academic year 2013 / 2014, the BVU expects nearly 100,000 course enrolments by approximately 40,000 students.

The BVU is not an independent university and offers neither complete courses of study nor degrees. Nevertheless, it may be interesting for EADTU-members to have a look at the way traditional brick-and-mortar universities build a network to make use of online-teaching, and thus integrate elements of distance-teaching into their portfolio of teaching modes.

The basic and most important working principles of the BVU are:

- Focussing on blended learning at the macro level of the course of study, not at the micro-level of the single course, lecture or seminar, giving priority to asynchronous forms of communication,
- Thus facilitating the import and export of online-courses between all member universities.

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[119] Parts of this paper, then based on the experience until the beginning of 2010, were published in the Polish online journal “Edu@kcja. Magazyn edukacji elektronicznej”, 1/2010, pp. 33-41.

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- To develop and offer courses tailored to the needs and the actual demand of the member universities, with an elaborate quality management.
- Financing the production of courses as well as the operation of these courses, especially the online-tutoring of the students.

Distance teaching at university level in Germany, higher education in Bavaria and online teaching in higher education

Due to multiple factors, distance teaching at university level plays a minor role in Germany compared with e.g. North America, Australia or the Nordic countries. To mention just two: first, there is hardly any place in Germany from which you would have to travel more than 50 km to the nearest university. Secondly, where student fees in state universities exist, they do not exceed 1,000 € per year, so there is no competition between expensive face-to-face tuition and more affordable distance education, as in some parts of the world. The FernUniversität in Hagen, a EADTU member, is **the** German distance university offering complete courses of study and degrees, and the demand for additional courses does not seem big enough to justify the investment in a second German large-scale distance university.

With a population of about 12.5 million, Bavaria is the second largest of the 16 German states (Länder). Bavaria currently has a little more than 270,000 students[120] and feels the need to expand the proportion of its population with a university degree. The BVU is part of Bavaria's strategy to enhance and to improve the possibilities to attend and successfully complete higher education.

According to the German constitution, all matters of education, from school to university level, lie within the exclusive jurisdiction of the Länder, not of the federal government. This explains the fact that there is no "German Virtual University". In general, the federal structure of Germany results in a large variety of approaches to most aspects of education, including online teaching and learning at university level[121]. Most of the states leave the strategy for e-learning completely to their universities, and by far not all German universities have developed a comprehensive strategy for the use of information technology and multimedia in teaching and learning. Bavaria is among the minority of German states which actively motivate and support cooperation between universities in online teaching, and it is the only German state financing online teaching across university borders.

[120] Cf. http://www.statistik.bayern.de/veroeffentlichungen/download/B3110C%20200922/B3110C%20200922.pdf.

[121] For a survey of the activities of the German states cf. Bremer et al. (2010).

Blended learning at the macro level

To make possible online teaching and learning across university borders, i.e. to facilitate the "import" and "export" of courses between universities, it is pivotal that these courses work completely online, without any face-to-face components except for the final examination. If students have to take part in face-to-face meetings, you cannot expect them to travel for hours. Therefore, online courses with face-to-face elements can be used jointly only by neighbouring universities.

"Blended learning" is interpreted by many experts as the combination of face-to-face teaching and web-based teaching within a single course. We call this type of blended learning "**micro-level** blended learning". While micro-level blended learning has many pedagogical benefits, it does not necessarily make full use of the economic possibilities of e-learning. Teachers who use single e-learning elements in their courses do not necessarily gain additional teaching-time, and micro-level blended learning is hardly a remedy e.g. against the shortage of lecture rooms many universities face. For the students, this type of blended learning offers rather limited flexibility. In many cases, especially when the web-based elements are exploited by only one professor at only one university, micro-level blended learning seems to offer higher quality or added value only at additional costs.

By contrast, the BVU focuses on **macro-level** blended learning with the aim to offer high-quality teaching with intensive tuition in a cost-effective way. By macro-level blended learning we understand the integration of single online courses into courses of study or curricula which otherwise (and for the most part) consist of "traditional" face-to-face courses (seminars, lectures et cetera). Thus, students can earn some credits in online-courses, but not their complete degree. This combination of face-to-face courses with courses that are delivered completely online (possibly with the final examination being held face-to-face) allows the students much more flexibility than micro-level blended learning. At the same time the students enjoy all the benefits of a traditional face-to-face university. Therefore, macro-level blended learning minimises the dangers of social isolation sometimes associated with e-learning.

Moreover, if online courses are developed once at one university, but used at several universities, the comparative cost-effectiveness is obvious. Thanks to macro-level blended learning, universities can "import" courses from other universities, including the support of their students by tutors of the "exporting" university. In contrast to micro-level blended learning, this kind of import also helps universities to compensate a possible lack of teachers as well as room shortages.

In its initial phase, the BVU experimented with micro-level blended learning courses. Students taking part in those courses generally appeared to be satisfied with the face-to-face elements, but an unknown (and for obvious reasons unidentifiable) number of students did not choose to take part because those courses did not offer the students the flexibility they needed or desired. Moreover, from the point of view of the university the import of blended learning courses is hampered by the fact that the importing university has to provide staff and rooms for the face-to-face activities. Several member universities of the BVU have explicitly declared that for them blended learning courses would not be a desirable and helpful contribution by the BVU.

Macro-level blended learning combines the social and pedagogical benefits of face-to-face teaching and learning with the economic effects of online teaching and learning, and it is therefore one of the

responses to the challenge of growing student numbers in times of strained public budgets. The cost effectiveness of macro-level blended learning, in turn, is the major motivation for the Bavarian Ministry of Higher Education to finance the necessary structures and the development of new content.

Programme structure

In the winter term of 2010 / 2011, the BVU offers 217 courses in 13 fields of study. A further 34 courses are currently in preparation, and the call for proposals in 2010 has resulted in an additional 33 courses to be financed by the vhb. Figure 1 gives the details of the programme structure by fields of study.

Sometimes the question of the "onlineability" of different subjects is raised. Within the BVU, successful online courses have been developed for various subjects and with different pedagogical concepts. Of course, some subjects appear to be especially suitable for online treatment (as opposed to traditional paper-based distance education) because of the additional pedagogical benefits which electronic communication and multimedia elements provide. On the other hand, the economical benefits of offering courses online instead of paper-based or face-to-face solutions can be just as significant and important. The BVU bases its decisions to develop and offer an online course on pedagogical as well as economical considerations.

Field of study	**Courses offered winter 2010 / 2011**	**Courses in preparation**
Business Sciences	31	4
Computer Science	16	0
Cultural Studies	3	0
Engineering	19	0
Health Care / Health Management	2	2
Key Skills	18	1
Languages	36	6
Law	25	4
Medical Science	32	12
Natural Sciences	1	0
Social Sciences	2	0
Social Work	15	0
Teacher Training	17	5
Total	**217**	**34**

Figure 1: Courses winter term 2010 / 1011

Owing to the large variety of fields of study with their different traditions, there is a corresponding variety of pedagogical approaches in the BVU's courses. You will find virtual seminars with intensive student cooperation, there are online lectures with tutorials, and there are virtual laboratories. In many courses students deliver papers. Self-study environments play a minor role, as the BVU puts individual interaction at the centre of its concept.

Synchronous communication places severe limits on flexible start-up and progression, and it limits the students' possibilities to organize their studies in a flexible way. Therefore, teaching and learning in most of the BVU's courses are based on asynchronous forms of communication.

The courses of the BVU are developed at the individual member universities; there is no central production unit. Generally, within the universities (or within their institutes which provide online education) there is a clear division of labour. Content is usually provided by professors, who then employ skilled staff for the transformation of that content into an online course. In some cases (mostly at universities of applied sciences), professors also take part in the technical implementation.

The process of choosing new courses for the programme of the BVU consists of two main steps: first, a call for proposals, and then a call for tender. Detailed information about this process can be found on the BVU's website. In short, the process is organized as follows:

Call for proposals: Once a year, member universities are invited to submit proposals for new online courses. For each course the interested universities form a consortium with a consortium leader. Proposals by only one university are not eligible, with the rare exception of cases where a subject is taught at just one Bavarian university, e.g. veterinary medicine. Proposals for such subjects are eligible if they are submitted in cooperation with a university outside of Bavaria.

The proposals are submitted in a standardised form which can be downloaded from the BVU's website[122]. There must be a demand for the given course at least at two member universities, and the online course, once it is completed, must replace part of the face-to-face teaching at the universities of the consortium, so that an actual relief of the teaching load in the given subject will be accomplished at these universities. The consortium must define the curriculum or curricula (courses of study) in which the new online course will be employed, and they must give an estimate of the number of students they expect to participate per academic year.

The consortia and their courses do not function as "closed shops". All member universities are entitled to employ the courses, and students of all member universities can attend the courses free of charge[123], no matter whether their university is a member of the given consortium or not.

[122] Cf. http://www.vhb.org/ausschreibung

[123] Persons interested in lifelong learning can take part in the courses if they pay a fee, but his plays a minor role.

Students from universities outside a consortium are advised to make sure whether their home university will acknowledge credit points earned in such courses before they enrol.

The proposals are examined by the BVU's Programme Committee. The Programme Committee selects the proposals most suitable for funding and passes its recommendations to the Steering Committee. The Programme Committee does not necessarily favour the proposals with the highest demand, i.e. with the largest number of expected participants. Special attention is paid to proposals for courses which make possible the establishing of new curricula at member universities, e.g. M.A. programmes at universities of applied sciences.

On the basis of the recommendations of the Programme Committee, the Steering Committee decides which proposals to fund. The consortia supporting those proposals are then invited to submit detailed descriptions of the courses.

Call for tender: These descriptions are the basis for the next step of the process, the call for tender. Generally (but not necessarily) bidders make a bid both for the production of the course and for the tutorial guidance of the students. The production of standard courses with an equivalent of two hours per week and semester (mostly 3 ECTS credit points) can be funded with up to 40,000 €. Costs exceeding this sum must be born by the consortium. Up to now, there have hardly been any such instances.

For the majority of proposals one bid is submitted by a member of the given consortium, but there are instances where competing bids are made. There are also instances where the only bid comes from a university outside of Bavaria.

The call for tender is published on the BVU's website. In addition, it is distributed to organisations similar to the BVU in other parts of Germany and the German speaking countries. The BVU encourages the use of courses which have been developed at universities outside of Bavaria; it is the policy of the BVU not to fund the design and development of courses if a suitable course for the given purpose exists elsewhere and a license for the BVU can be obtained.

In order to be accepted as producer of a proposed course, bidders have to conclude a contract with the BVU where, as a rule, they transfer to the BVU the exclusive right to use the course in online form. In cases where the BVU is not the exclusive financer, appropriate arrangements are made.

The producers further commit themselves to arrange personally for the operation of the course (i.e. to provide tutorial services and guidance) for at least five years. Should the producer not be in the position to operate the course any more, the BVU can transfer the operation to somebody else. Up to now there have been few instances where a transfer of course operation has been necessary. In most of these cases the course operation was taken over by another professor of the producer's university.

All members of a given consortium have the right to take part in the quality assurance process during the production of the course. They are encouraged to do so, especially by taking part in milestone meetings where the state of the work in progress is presented and discussed. Members of the BVU's project management take part in these meetings. Thus, all members of a consortium can

make sure that the final course will meet their expectations; problems can be solved at the earliest possible stage.

Intensive tutorial guidance

Learning is to a large degree based on interaction. In comprehensive online courses without sufficient interaction, i.e. without communication between the participants and a teacher or tutor, a considerable dropout rate is to be feared. Therefore, the BVU funds not only the developing of courses, but also their regular operation. Moreover, the idea of state-wide utilization of the courses, i.e. of the "import" and "export" of courses between universities, would not be viable if there was no funding for the tutoring of students from universities other than the university of the course provider. There must be a sufficient incentive for this additional teaching effort. Therefore, the BVU funds the tutorial guidance of the students in standard courses with 25 € per student. This money is paid if the student has taken part in the final examination.

This regulation has been questioned as there are instances where a student makes intensive use of tutorial guidance but does not take part in the final examination. On the other hand, there are instances where a student merely enrols but does not take part in the course, so mere enrolment would be unsuitable as an indicator for the amount of tutorial work. The most objective measurement of the tutorial work spent on every student would be the tracking of the student's online activities, but this would infringe laws on data privacy protection. The present regulation appears to be acceptable because it also applies to students of the teacher's own university, so that this university gets additional funding.

The question has also been raised whether the successful passing of an examination rather than the mere participation should be the criterion for the funding of tuition. This idea has been rejected after thorough discussions in both Programme Committee and Steering Committee, because this solution might be interpreted as an incentive for course providers to offer "easy" examinations. This, in turn, would not be in accordance with the BVU's effort in quality assurance.

Quality assurance

Evaluation and quality assurance play a central role in the BVU's overall concept. The development of every new course is closely supervised by experts from the consortium which submitted the proposal for the course, and by the project management of the BVU Office. Together, they approve the new course for inclusion into the BVU programme.

Students evaluate their courses every semester, and the results of these evaluations are discussed with the course providers. After five semesters of operation, each course is evaluated by two peer experts (always professors from outside of Bavaria), one of them focusing on matters of media pedagogy and didactics, the other on the subject content. The results of the students' evaluation are

made available to the peer experts, too. For the student and expert evaluations, standard evaluation sheets are employed[124]. The results of the peer evaluation are discussed by the Programme Committee and the Steering Committee and with the course providers. Any problems in the sphere of tuition addressed in the student evaluation can usually be solved by the BVU Office and the individual teacher.

Course providers can apply for the funding of the updating of their courses if the necessary work exceeds the occasional updating university teachers are expected to perform in face-to-face teaching. The BVU provides the necessary funds as long as there is a sufficient demand for the course.

Providing courses for tutors in BVU courses as outlined above is also part of the BVU's quality assurance activities. Furthermore, the BVU supports competence development for professors of its member universities by organising workshops on e-leaning.

Technical issues

In the BVU with its 31 member universities, a variety of learning management systems (LMS) is in use. This variety is a consequence of the variety of the subjects taught as much as of the history of the BVU: The BVU started in 2000 with a portfolio of 36 courses which had been prepared for different subjects by different universities.

No central server is used; all courses are on servers of member universities, and they are administered by responsible persons at member universities, i.e. by professors of the member universities or by members of their staff.

It has been argued that this decentralised approach might not be the most effective solution, but as far as can be judged from the students' evaluation, the plurality of LMS and platforms does not constitute a problem for the students. Critical remarks related to specific features of specific systems (which were then improved) did not refer to the fact that a variety of systems is used. Besides, the migration of the existing courses to a single system would not be economically sound. The gradual introduction of a central LMS has been discussed by the member universities, but the vast majority is not in favour of such a solution.

While unification of LMS does not seem to be an urgent issue, the establishment of an authorisation and authentication infrastructure (AAI) is making progress. As a first step, a way of data exchange has been established with all important member universities that makes online-registration with the BVU possible. Data on participation in examinations and on their results are a sensitive issue. These data are exchanged directly between the examining university and the students, and between the students and their home universities, not via the BVU. An AAI based on Shibboleth is being

[124] An English version is available:

http://www.vhb.org/fileadmin/download/vhb-QS-Kriterienkatalog_Englisch.pdf

introduced in cooperation with the Leibniz Computational Centre (Leibniz-Rechenzentrum - LRZ*)* in Munich.

The BVU's organizational structure

The basic body of the BVU is the Assembly of Member Universities, in which each member university is represented by a Commissioner, who in turn is the key person for all BVU affairs within her or his home university. Each university has one vote per 5,000 students. The Commissioners usually are members of the governing body of their university. The Assembly elects the Programme Committee and the Steering Committee, which appoints the Managing Director.

The Steering Committee consists of three persons. Both the President and the two Vice Presidents are presidents of member universities and in this function represent the BVU in the Conference of the Presidents of the Bavarian Universities (Universität Bayern e.V.) and the Conference of the Presidents of the Universities of Applied Sciences (Hochschule Bayern e.V.). The President of the BVU usually is President of a university, one of the Vice Presidents is President of a university of applied sciences. The Programme Committee consists of eight persons. Five of these must be Vice-Presidents for questions of teaching and studying at their respective universities, one must come from a university outside of Bavaria. At present, four members of the Programme Committee come from universities of applied sciences, and four from universities.

While all offices mentioned so far are held by professors as part of (in fact, in addition to) their ordinary workload, the Managing Director and the employees of the Office or Service Unit (Geschäftsstelle) work for the BVU full-time. In the Office, 16 employees work in the areas of finances, project management, public relations, student registration and technical support. The Office is located at the university of Bamberg.

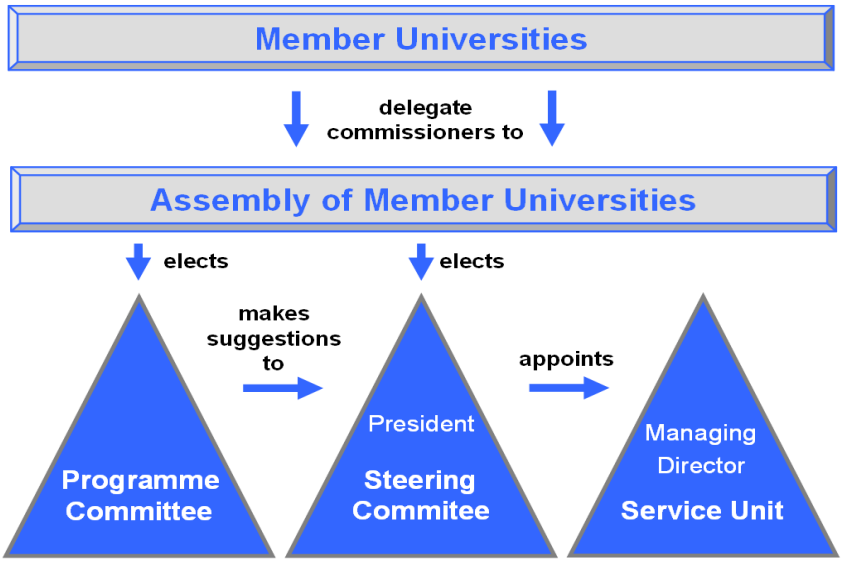

Figure 2: Organizational structure of the BVU

In addition to its regular responsibilities, the BVU has been assigned by the Ministry of Higher Education with the organization of projects within the framework of the European Social Fund for the period of 2007 to 2013.

Results and financing

As early as 2007, the BVU was identified as one of Europe's "mega-providers of higher education online" by the European Union's MegaTrends project.[125] This study was based on data from 2005, when the BVU had about 20,000 course enrolments annually. Today, there are more than 65,000 course enrolments by more than 25,000 students per academic year. Figure 3 shows the development of course enrolment over the years:

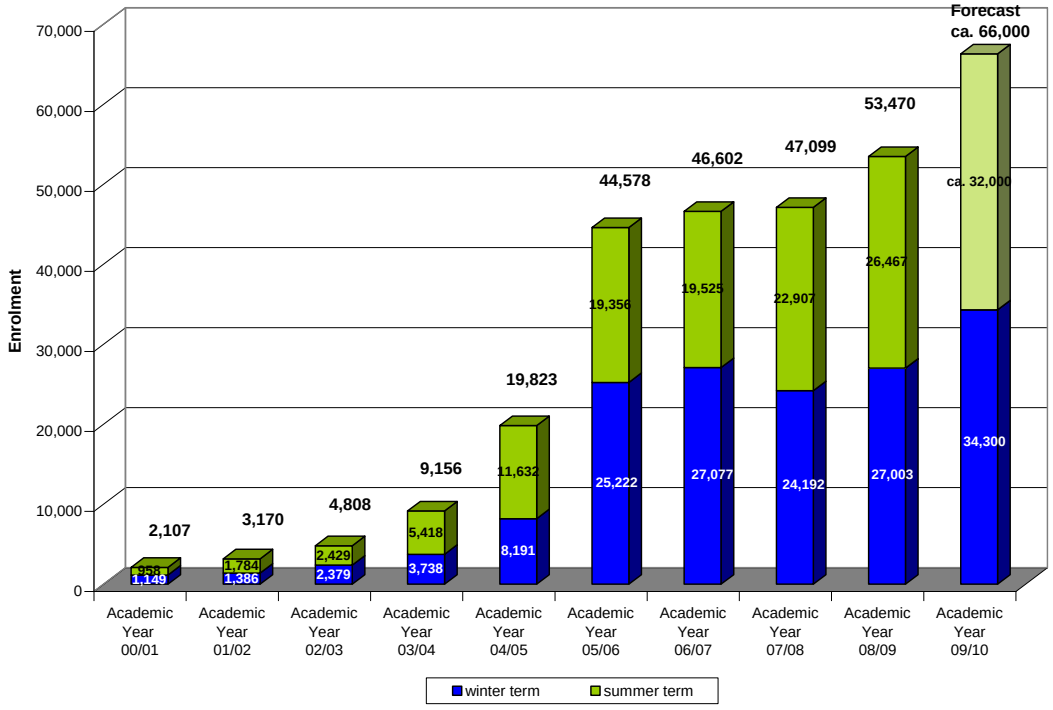

Figure 3: Development of course enrolment

In the years for which complete data are available, 56% of the students who enrolled in a course took part in the final examination. 57.5% of the total enrolment was in courses offered by a university other than the student's home university. This shows that the "import" and "export" of teaching across university borders has become a widespread reality.

[125] Cf. http://www.nettskolen.com/in_english/megatrends/

At present, the most popular subject areas are Law, Business Sciences and Medical Sciences. There is a noticeable difference between individual fields of study regarding the participation in final examinations (cf. figure 4 on page 10). This can partly be explained by the fact that some students use BVU courses as an additional source of information and an opportunity to receive extra training and tutorial guidance, but wish to obtain the necessary credits through examinations in courses of their home university.

Financing: In the period from 2000 until 2008, the BVU was financed by the Bavarian government with more than 22 million €. For the years 2009 until 2013 an agreement has been concluded between the Ministry of Higher Education, the Bavarian universities, the Bavarian universities of applied sciences and the BVU by which the annual budget of the BVU has been raised to approximately 6 million €. The bulk of this sum comes from the Bavarian state budget and other state programmes; the member universities contribute one Euro per student and semester, i.e. a total of around half a million Euro per year.

	A	**B**	**C**
Business Sciences	7,632	14,3%	54,5%
Computer Science	1,493	2,8%	56,3%
Engineering	2,659	5,0%	66,4%
Key Skills	7,344	13,7%	60,6%
Languages	3,386	6,3%	59,6%
Law	19,509	36,5%	42,1%
Medical Science	7,486	14,0%	91,6%
Social Work	2,356	4,4%	72,1%
Teacher Training	1,605	3,0%	79,4%
Total	**53,470**	**100%**	**56,0%**

A: Enrolment in field of studies

B: Percentage of total enrolment

C: Percentage of enrolment resulting in examination

Figure 4: Enrolment and examinations by fields of study, academic year 2008 / 2009

Conclusion

The success and the further development of the BVU depend on its ability to serve the needs of three target groups: students, teachers and universities. By serving the needs of these target groups, the BVU serves the needs of society and state, which in turn provide the necessary funding.

Students profit from the flexibility of online teaching which is especially important for "non-traditional" students. Therefore, the BVU concentrates on asynchronous forms of communication. Students of the member universities do not have to pay any additional fees.

The quality of the courses is assured by an elaborate system which makes the quality of online teaching even more reliable than the quality of face-to-face teaching. The possibility of developing e-learning literacy while studying a subject as part of the curriculum enhances the employability of the students without requiring additional effort.

Teachers experience a wider range of pedagogical possibilities. Many of them also appreciate the possibility of reaching more students with their teaching. Where online teaching is accepted as part of the professors' workload, they also profit from the flexibility online teaching permits.

By offering online teaching and tuition on standard subjects, teachers can focus their face-to-face teaching on more advanced or specialised subjects. This can be both more demanding and more satisfactory.

Working within the BVU network is also attractive for professors because of the grants by which the BVU funds the development and improvement of online courses and because of the financing of tutors. Moreover, funding by the BVU is considered "third-party-funding" in the performance record of the respective professors and faculties.

Universities profit from the BVU in several ways. By using BVU courses, universities considerably enhance their teaching capacities. Not only can they offer additional subjects, they can also restructure teaching capacities and use them for subjects less suitable for online teaching.

Generally, universities face times of more intensive competition. But this does not exclude cooperation. On the contrary, in order to survive in a world of growing competition, universities will have to cooperate not only in research, but also in teaching. The BVU is an excellent means of establishing and developing such cooperation. One of the positive effects of this cooperation is the establishing of common quality standards for online teaching.

The BVU avoids competition with its member universities. In particular, the BVU does not develop for-profit courses for further and continuing education.

From the point of view of the **state**, the situation can be characterised by the following considerations:

1. Public budgets will continue to be strained, because debts and deficits must be reduced.
2. The number of students will rise considerably at least until 2012. Later, demographical factors indicate a gradual decline. On the other hand, Germany and especially Bavaria wish to boost the proportion of their population with university-level education, and they wish to attract more students from abroad. This could also lead to growing numbers of students after 2012.
3. As far as we can see, in Germany higher education will continue to be basically state funded. The fees introduced in Bavaria in 2007, with a maximum of € 1,000 p.a. per student, cannot fundamentally change this situation.
4. Therefore, additional high-quality education must be provided in a cost-effective way. The development with public money of similar online courses in different universities would be economically unwise.
5. Online education which is financed, organised and exploited by a joint venture of all universities together with the Bavarian Ministry of Higher Education appears to be an appropriate and necessary response to these challenges. Of course, this cannot be the single response.

To achieve its present position, the BVU has had to concentrate on the following key factors, and it will go on doing so in order to continue its successful development:

- strict orientation towards the demand of the member universities,
- cost-effectiveness,
- putting quality first, employing a thorough quality management,
- close cooperation with universities and the Ministry of Higher Education,
- drawing upon the competence of the member universities, using their infrastructure as much as possible,
- continuous improvement of courses and of administrative processes in order to reach maximum user-friendliness,
- transparency in all decisions, especially in funding,
- lean organisation, simple structures.

The development of the BVU from 2014 on, i.e. after the period of the current agreement, will depend on the priorities set by the member universities and the Ministry. Possible fields of additional effort may be lifelong learning in its various forms, further courses in English and additional courses in the Humanities, which up to now have played a minor role. The BVU is interested in developing international cooperation to promote “virtual” student mobility. The BVU is interested in developing international cooperation to promote “virtual” student mobility. This could include cooperation with EADTU members.

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Schuwer, Robert & Driesche van den Karin: What do teachers in Higher Education expect from OER?

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Abstract

On December 14, 2009, the Minister of Education of the Netherlands, Ronald Plasterk, launched the first version of Wikiwijs. A little more than one year before, on December 4, 2008, he had first launched the idea of Wikiwijs. Wikiwijs has to be the place where all teachers of the Netherlands, ranging from primary education to higher education, can (co)develop, share, rework and use digital learning materials, published under an open license.

To learn about the requirements for Wikiwijs, research has been conducted to find out about the expectations among teachers in all educational sectors. The principles of User Centered Design (UCD) were followed by this research. This approach leads to a set of personas, each representing thousands of future users of the system. The paper will give insight into these principles and will present the results for teachers in the field of Higher Education.

1. Introduction

On December 4, 2008, by the Minister of Education at that time, Ronald Plasterk, launched the idea of Wikiwijs (Schuwer and Mulder, 2010). The **basic idea** is to create a digital, internet-based platform to bring together, share and develop digital learning materials for all educational sectors, ranging from primary education to higher education. Digital learning materials are more than digital textbooks only. It will also comprise tests and practice materials.

The first version of Wikiwijs was launched ultimo 2009. For this version the focus was on several subjects (language, arithmetic and math) and only primary, secondary and intermediate vocational training were supported. One of the activities in the period before the launch was an investigation into the demands of the target group. This investigation was carried out using the principles of **User Centered Design** (UCD). This choice was based on positive experiences with these principles in earlier projects.

During the first half of 2010, the scope of Wikiwijs was broadened. One of the activities was to find out what the best way was for Wikiwijs to support Higher Education. Again, the investigation used the principles of UCD.

In chapter 2 the background of UCD is described. Chapter 3 describes the way the investigation was set up. In chapter 4 the results of the investigation for Higher Education are presented. The paper ends with some conclusions on both UCD and the results.

2. User Centered Design, the principles

In many development projects in one or the other way users play a role. In meetings design decisions are based upon an idea that the user is going to be happy with these decisions. And if there is any doubt you can always do an usability test. In how far the design decisions are really based on users expectations and needs and not on say, technical possibilities or the design teams preferences, is not really an issue. If there is an usability test before the publishing of the website, due to time pressure often only quick wins are implemented. In the next releases hopefully all the other findings from the test will be implemented.

This summary of a standard development process leaves two questions open: 1. How do you know that what the development team has in mind about their users has any real connection to the users? and 2. How do you know you have chosen the right concept/design? In an usability test you only test that particular concept, with the risk of improving the wrong concept.

The frustration of many designers who listen carefully to the requirements of the development team is bad results from the usability tests. They did meet all the requirements in the concept they designed and the development team was probably cheering when the designer presented the design.

Wouldn't it be nice and logic to have user data ready before the development starts? Making sure you chose the best concept for the user needs? And the usability test would improve this best design to even higher standards.

If you look at **user centered design** which in short means, putting the focus on the needs, wishes and capabilities of end users or customers during every part of the design process, wouldn't a lot of development teams think that is what they are doing? They talk about the users and they (sometimes fight to) have an usability test done. What is wrong with that? The thing that is really missing here is the user himself. User centered design means **talking to actual users about their work in the work place**. This will take about one hour per user and even talking to only one user is better than none at all. You talk about their work, because that is what you are going to support. Or you talk about the decision process in their daily or professional live, because that is what you are going to support. Talking to users about content and/or functionalities won't get you the user data you really want and can support your design decisions. It is hard for users to pinpoint how their work

can be supported by what functionality. Besides that is not their job, it is the development teams job.

As a development team you want an overview that covers all your users, not one or two 'super' users who have knowledge about ICT development. Interviews and observations of users during the execution of activities in the offline world will identify common patterns and mental similarities. This gives a clear picture of all the users, in an early stage.

Summarizing, UCD focuses on three important things about designing with the focus on ease of use:

- Your users: what roles they play regarding the system.
- Their work: what tasks they are trying to achieve in their roles.
- Their needs: what instruments/tools and materials are needed for the tasks.

UCD as a process will lead to discovering new targets. The method is goal directed but not static. It contains a set of principles which can support any form of development process. Using UCD will support and promote innovation and the results are desired by real users. It creates the ability to radically transform by having user data available at the beginning of the development process.

2.1 Characteristics of User Centered Design

The **roots** of the UCD process lie in the Grounded Theory (2010), a method of qualitative research. In (Boeije, 2006) the following list of the characteristics of qualitative research are mentioned:

- Experience of those investigated, interpretative.
- Research in the everyday environment, naturalistic.
- Open investigation procedure.
- Researcher as an instrument.
- Working with texts (transcript), which include extensive and detailed descriptions.
- Statements by stakeholders and from a theoretical and / or social backgrounds.
- Experience of those investigated, interpretative.
- Research in the everyday environment, naturalistic.
- Open investigation procedure.
- Researcher as an instrument.

Both end users and domain experts are needed to provide input. Users live with the product, closely linked to their daily work, but are relatively unaware of important issues outside their scope. Domain experts hover above the product, they know the whole landscape, but see less of the practical details. Easy access to users and domain experts promotes fast switching between design and development.

Designing for users is to connect to their expectations and creating a positive acceptance.

The interaction with an interface is part of every computer and determines how people use and manage that system. If the interaction is well designed, it is understandable, predictable and manageable. As a result, users feel happy and involved with their tasks.

Within the UCD process the design is tested early in the design process. In this way the solution is checked whether it fits the logic of the user. Several iterations are possible. Both, parts or the whole product, can be tested. Participants can be the same as the interviewed users or a new selection is made based on personas.

The greater the pressure to develop systems, the greater the need for thoughtful and comprehensive use of models. That is easier said than done. There is a need for making shortcuts, but creating shortcuts will ultimately cost money because reverse development always takes longer. But still it is better to interview one user or customer than none at all (Beyer and Holtzblatt, 1998).

Summarizing, UCD has the following advantages:

- Everybody in the organization will have access to user data.
- Putting the focus on the needs, wishes and capabilities of end users or customers during every part of the design process.
- Seeing the 'big picture'.
- Preventing behavioural preference of one or two (super) users.
- Less need for (expensive) usability testing.
- Preventing the pitfall to build what the user asks instead what people actually will use.
- Saving time because the discussions within a development team are focused on the big picture and real user data.

2.2 User Centered Design techniques

The method of UCD consists of a few techniques which you can use in a way that fits the development team and deadline for the project. One thing is critical though, you have to collect user data and talk to the actual users in their work place. You are free to chose the amount of users you interview, which work models you create, whether you want to use **personas**, even if you want to design a product or instead use the data for communication, brainstorm sessions or other organizational processes.

These primary and basic stages will lead to a complete design that will connect to users expectations and create a positive acceptance:

- Collecting and analysing user data
- Create work models
- Write personas
- Create information analyses schemes
- Designing wireframes with navigation panels
- Early usability testing using paper prototypes and improving the design

Some of these activities will be described in the remainder of this chapter.

Collecting and analyzing user data

Interviewing users is the main activity for collecting user data. The intention of the interviews is to visualize the work of the user. The interviews are semi-structured and master-apprentice in approach. Semi-structured means that a set of questions are pre-prepared that need answering and keeps the focus on the research question(s). The master-apprentice approach means that the interviewer leads the interview process but not the information that is given.

During the interviews artefacts are collected. Artefacts are tools used during the work- or decision process by users and tell how people work and what they might lack in support. An example of this are e-mails that people send to themselves to remember certain things.

The difference in questioning when using qualitative or quantitative methods is best shown with these example questions about the use of a digital board by a teacher. In UCD the main focus is on answering 'why' and 'how a problem gets solved' questions. (In Boeije, 2006)

- Question in quantitative method: How often do teachers use a digital board and in what frequency?
  Explain the answers by checking these numbers in relation to school type, age, background, gender, region.

- Question in qualitative method: What variations are there in meaning and methods of using a digital board?
  Explain the answers by looking at patterns in use:
  - Do teachers have existing digital course material available?
  - Does different usage of a digital board depend on certain topics?
  - Does different usage of a digital board depend on the level of students?
  - Do teachers develop digital materials themselves?
  - Are teachers dependent on the available classrooms that have a digital board?
  - Do teachers use the digital board all the time during a lesson or partially?
  - Has the usage of a digital board increased or decreased the work load?

All questions are followed by the 'And why?' question.

Create work models

After interviewing the users, transcripts are made for analyses of the interviews. To be able to work with the data and spread the knowledge into an organization work models are created. There are several models to chose from, all models representing the user. For example a flow model that shows the relationship between the different roles of users and a mental model or affinity diagram

which shows the relationship between the tasks of users. Without work models critical functions are discovered late in the development process, which leads to high costs because of redesign.

There are few other advantages creating and using work models. Because they are simplified forms they focus on the big pictures, details are kept for later when they do matter. This will accelerate realization. Work models are real data and accessible throughout the whole organization, they allow reliable design decisions. It promotes research and innovation based on real user intentions and needs, not gadgets, desires and fantasies functions (Beyer and Holtzblatt, 1998).

Mental model, a clear picture of the 'market'.

The mental model describes the work from the standpoint of the users in their own words. It tells how people think and cope with their tasks and goals. A representation of the way users do things, such as how to solve a problem or complete a process. In addition, common issues and themes within large groups of people become clear and whether they deal with things in the same way as another person. This overview inspires to find new solutions, bottom-up. For Wikiwijs it means to finding out how Wikiwijs can support teachers, not only by automation but also by the things like training. The role of the solutions is always to unburden peoples workload.

Create a mental model

In a mental model a large amount of concrete user information is organized. The structure of a mental model has the form of a narrative, the story of the work processes. Information is arranged bottom-up, this means without pre-defined categories. The structure of a mental model can directly matched onto the structure of software. One of the big advantages is that the structure of a online service will not be sorted by keywords but is supported by the natural work flow.
User activities are divided in so-called **mental spaces**. A mental space is a group of task towers (a set of related tasks; the yellow parts in figure 1) that share the same user goal. For example working on a letter and decide to go and check e-mail messages is a switch of attention and therefore are different mental spaces. The relation between tasks is based up on steps a participant describes and similarity in tasks. Visually every task box shows how many people mentioned this activity.

Mental models can grow in response to a new group of users or new activities or roles.

In the example Movie mental model from Indy Young (2008), the mental spaces are:

- Decide to watch a film
- Encounter a film I haven’t heard of
- Choose film
- Learn more about a film
- Choose a theatre
- Choose a time
- Go to the movies
- Watch a film at home

- Eat dinner
- Attend a film event
- Watch the film
- Identify with a film
- Interact with people about film
- Follow the industry.

The mental spaces of the university teachers were:

- Using digital learning materials
- Develop learning materials
- Share self developed learning materials
- Teaching masters students
- Adjust existing learning materials
- Using online learning materials
- How students learn
- Communicating with students using digital tools
- Teaching
- Get inspiration

To put it simple, when a mental model matches the structure of a tool or content this software will be easy to use. People recognize their own workflow in the system, minimizing the learning curve and they can predict what and where everything is placed.
If there is an existing system making a content analysis happens by placing the model of the users on top and beneath it the model of the system. Checking the mental model with the content and functionalities of the system gives insight in whether all task towers are supported by content or functionalities. Any gaps show possibilities for automation, any overload on the systems side will tell what to delete.
When a new system is developed every mental space or task tower shows if this activity is important enough to support because a lot of users talked about it or when it is an important part in the whole user work process. Under the model of the user all possible content and functionalities (or trainings) are placed, following the exact flow mentioned by users (Young, 2008).

Figure 1 shows a part of the mental model of Teachers in HE: Activities surrounding the handling of information in relation to the development, use and choice of materials.
As an example, figure 2 shows a mental model of a movie goer with a match to a supportive system, adapted from (Young, 2004).

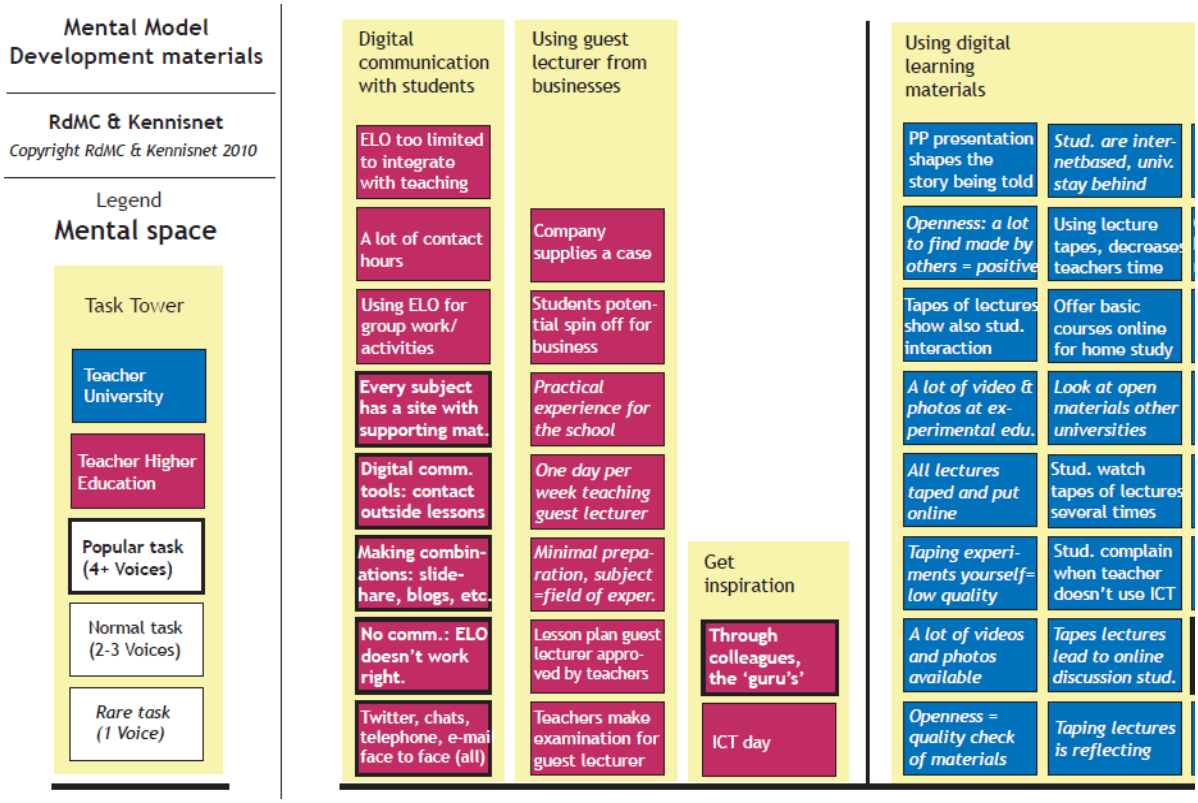

Fig.1 Part of a mental model of Teachers in HE: Activities surrounding the handling of information in relation to the development, use and choice of materials.

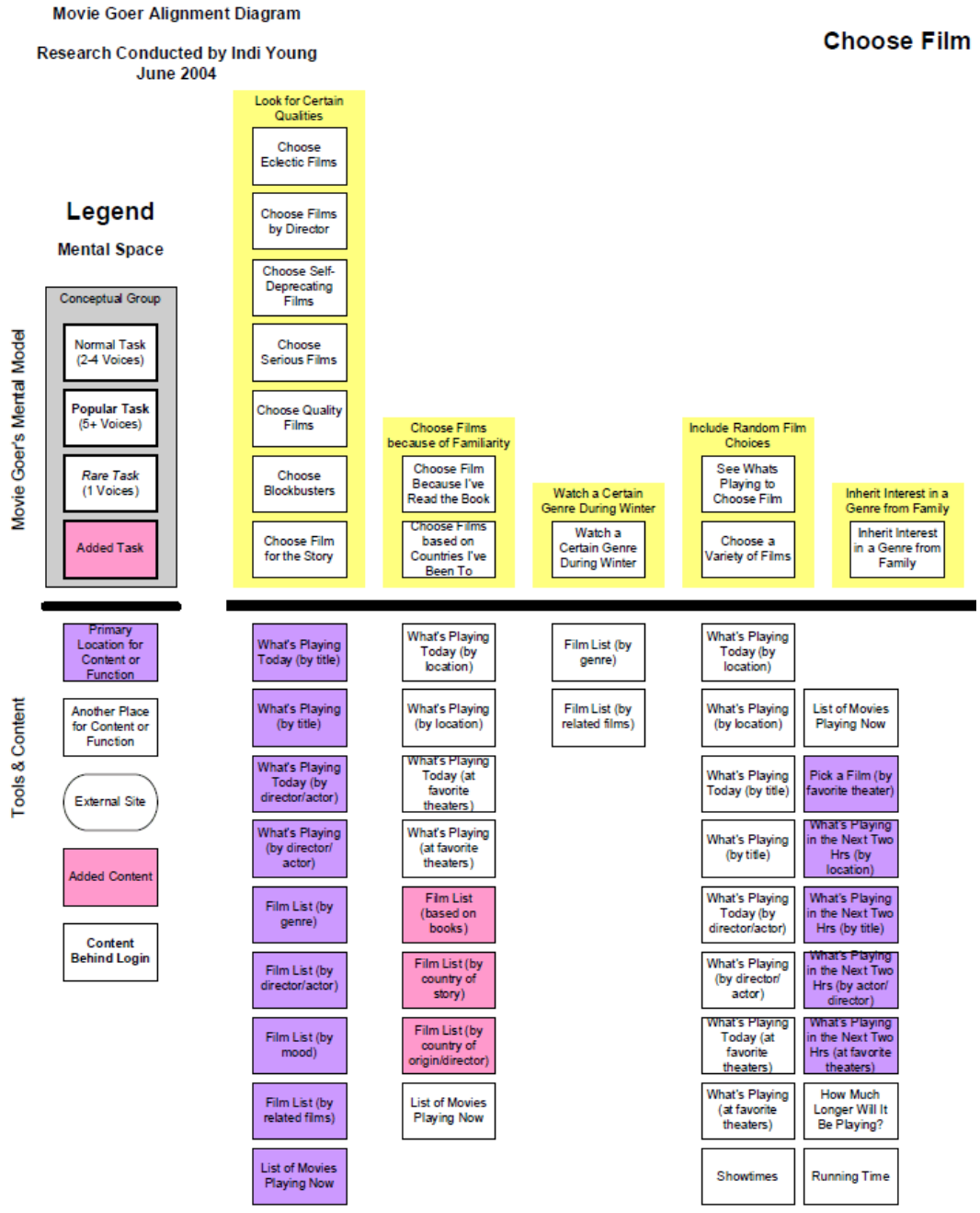

Fig.2 Mental Model: Movie goer

Write personas

A good way of telling what personas are is quoting the design company Adaptive Path (2010): "Personas are fictitious people who represent the archetypal qualities of your audience. They provide targets for design and are generally very effective for communicating design and research activities throughout an organization."

Personas are a tool that help communicate the results of the interviews to the development team or through all levels of an organization. From the interviews archetypes are created for the major groups of users. Using these fictitious persons, the focus during the development process stays on the target groups. Personas give concrete direction by asking questions like:

- How can we best support persona X during his/her work?
- Do we help persona X in providing this functionality?
- Persona X wants this, how can we design it?

It helps the development team to make choices and decisions. Because there are often large groups of users, making multiple personas who represent these groups the patterns (similarities and differences) can be seen throughout the large amount of users. Any misconceptions about the user can be tackled at an early stage. And ultimately this leads to improving the quality of a product or service. It also saves time because the discussions within a development team are focused on real users.

In summary a persona is based on realistic behaviour, motivation, attitude, skills and needs. The behavioural patterns, belonging to a persona group, are described as concretely as possible from the various interviews. The typical characteristics of users are presented as a lively, narrative description. Aim of the personas is that they are challenging and will tell new things. One persona represents thousands of users.

One of the ways to use personas is a scenario where the personas 'walk' through and use the product. It gives an overview of tasks and functions and helps to design a logical and user oriented flow of all activities in a process. This provides an easy way to check the design decisions before testing the whole product.

The personas and the different models that are created have a life span of about five years. That means that during this time the models and the personas can serve as a starting point for development and extension of the system. After that period they need revision (Cooper, 1995).

Figure 3 shows a persona of a teacher in HE in the Netherlands.

Casper Wilson

Senior lecturer at
Technical University

Background

- 42 year old man.
- Just married and father of a newborn son.
- He is involved in teaching and research in the field of sanitary engineering.
- Has recently implemented a new educational curriculum.
- Travels a lot because of lectures he gives and conferences he visits.
- Considers web conferences a major outcome in terms of saving time and money.

Personal Profile

At the university where Casper works all lectures are recorded and are digitally available online. Just like all the lecture notes, PowerPoint presentations, examinations and special assignments. At his university they want to use the digital possibilities. Initially, there was an enormous shudder amongst colleagues: "Should we do that, way too modern." But Casper and a group of colleagues want their students to have the best material. This can also be used for recruiting activities, which for Casper is clearly an afterthought. "You can never develop something for the future, you do not know whether it will attract the students. It obviously costs a lot of money to develop education." The consequence of open publishing means all materials automatically undergo a quality check, according to Casper. "Because once we had everything in Blackboard here. And Blackboard is a 'wonderful' closed environment ".
The technical department is applied education and is great for making movies of experiments.
The course is internationally established. Therefore there is a very diverse group of students having different backgrounds. "And that makes a nice interaction between students, as a foreign student may say: 'Yes, but in my country we do it very differently.' This way you get a very nice discussion."
Foreign students speak English very well, in theory, but in practice they do not. "I know that some students view the lectures up to eight times."
Diversity also arises because the master students have worked already a number of years in practice. They really have very specific questions about issues they encounter in the daily activities of their job.
More and more students ask for digital educational applications. The more you can digitize, the more pleasant it is for them. "And it is really crazy that we get money from the government and that education happens in small rooms at universities where nobody can see it. Make it open! We get paid anyway by the government? So show what you do and if the teacher is afraid to lose his face, then he should not teach. That is part of the game. Anyway, that's my opinion and I know that is not shared by everybody. "

"The basic lessons I'll tape on video, I'll teach them well once and they stand for the next five years. That's also the way I see Wikiwijs, a basic will arise and you pick up from there on."

Casper Wilson

Senior lecturer at Technical University

Goals and motivation

Casper comes to Wikiwijs to ...
- Find core courses, for example about a small part of chemistry. The basic components plus a way to link applications to each other. "That would be a nice form of connecting materials."
- Digital didactics for support. To see what's going on in the field of digital learning resources, especially internationally.
- See how educational trends are applied.

Casper expects from Wikiwijs...
- That it focuses on practice. "Publish only theoretically materials and no one will visit Wikiwijs."
- A kind of base for colleagues to be able to build upon. "Fundamental knowledge that you do not want to explain yourself anymore."
- An international set up.
- English language.

Casper will return to Wikiwijs for...
- The core lectures.
- Making referrals to publications and books he writes.
- To see what other experts from leading institutes are talking about.
- Movies of technical experiments, preferably in 3D.

Philosophy of Casper

- Arrange education so that in addition to digital communications your personal contact hours will be maintained. "Extra things you offer to students to make them feel: I'm unique."
- Besides lectures add many practical elements.

Work motivation

- The diversity of students and discussions.
- Develop the best materials together with colleagues .
- Give inspirational lectures that will affect you.
- The personal relationship with the master students.

Internet usage

- Experience: High
- Primary uses: Sites of other (foreign) universities.
- Favorite sites: My department site for the students.
- Hours online per week: Continuous online.
- Computer: My laptop.

Fig.3 Persona Casper, Teacher HE

Number of interviews

When selecting the number of participants for interviews keep in mind the goal of these interviews: knowing how people organize their work process and whether they deal with things in the same way as another person's do. How tasks are divided into activities, goals, strategies and several individual steps.

One way to select participants is to define **roles**. We all have different roles and these roles tell what we do and where our responsibilities lie. During the interviews finding out how someone performs this role, what their approach is and where this approach has similarities with other approaches is the main focus. We are all unique, but only in details. Looking at the structure of any approach shows that three different ways of doing things are the maximum. (Beyer and Holtzblatt, 1998). This was confirmed during the Wikiwijs user research.

If you ensure that the roles defined are at least three times discussed then you have enough participants. The matrix in figure 4 shows that role E and F occur only twice within the set of six participants. This means a seventh interview is necessary or one or two participants should be replaced. Eventually expand the number of participants after the analyses of the data.

Role	A	B	C	D	E	F
Participant						
1	X	X	X			
2	X	X	X	X	X	
3	X	X	X			
4		X		X		X
5	X		X		X	
6	X	X	X	X		X

Fig.4 Participant matrix

Karen Holtzblatt states about the relatively small number of interviews:

'…years ago, while testing for usability, people in the industry were not comfortable with test results from small numbers of users. However, after 15 years of collecting data, the industry has found through experience that small numbers add up to a detailed picture of work practice that supports design. And we're not just looking at usability anymore; we're engaged in market characterization at the level of work practice.' (Holzblatt, 2001).

‘A small, quick-iteration project only needs a small amount of planning. We have completed field studies of 5-8 users, quickly consolidated and brainstormed solutions, all within a week or two.’ (Baker et al, 2004).

3. UCD research in Wikiwijs, the approach

In 2006, the Open Universiteit used UCD to find out about motives and desired support for teachers in primary and secondary education. This investigation was commissioned by the Ruud de Moor Centre, a department of the Open Universiteit with the assignment to develop tools and support for teachers to help them professionalize. As part of this earlier work, personas were developed and several models were created that guided the development of a supporting website from the Ruud de Moor Centre. End of 2008 and 2009 this research we extended with a focus on the use of some knowledge bases that were developed by the Ruud de Moor Centre and that needed a redesign.

In June 2009 the research started among teachers in primary, secondary and vocational education for the Wikiwijs program. The research question was to find out about activities surrounding the handling of information in relation to the development, use and choice of materials. Because this question had overlap with the earlier research of the Ruud de Moor Centre, part of the personas developed could be reused for this research. In September 2010, Wikiwijs was extended for use by teachers in Higher Education (HE).

To conduct the research, interviews of approximately one hour were taken from ten teachers in their work place, spread over a range of schools for higher education and universities. Dimensions (combinations of requirements) were formulated to create a maximum of diversity in selecting schools and teachers:

- Sector: Schools for Higher Technical and Vocational Education and Universities.
- Subject areas: Language, beta sciences and the rest.
- Level: Teaching or Developer of study methods.
- Roles: Developer, Orchestrator, User.
- Experience: A lot of experience in development, none or a little experience in development, none or a little experience using digital teaching materials.

For the interviews, a list of questions was prepared to ask during the interviews. During interviews, some of them were skipped, depending on the roles of the teacher has.

- What do you do before, during and after the lesson?
- What are the triggers for the different activities?
- Which information is hard to find?
- What do you do when you can’t find the necessary materials?
- When are more (supporting) material developed, why and how?
- Do you share materials, do you receive materials and how?
- How long does it take to prepare and develop different kinds of materials?
- Do you have a clear idea before you start developing?

- Do you develop learning materials together with others or alone? Why, how and when?
- Do you use a digital board, is there an internet connection in the classroom?
- Which educational method do you use now and which ones have been used in the past?
- How do you find out you have to add material? Approach, time and planning? Do you keep these materials for yourself or do you share them?
- Development of learning materials during a school year and over the last years?
- What is the influence of switching schools or classes on your activities?
- Did you have any training in development of learning materials?
- Where do you find/look for learning materials?
- On which characteristics do you select certain materials?
- How do you get confirmation that the materials are effective?
- Is there any difference in development for certain classes, schools, fast or slow students?
- Do they concult colleagues or experts?
- What support are you lacking in their work?

Each interview was conducted in the work place of the interviewee. From each interview, a transcript was made. These transcripts were the starting point for the mental model and the personas. These results will be handled in the next chapter.

4. Results of the research for Higher Education

After conducting the ten interviews, the personas were written. To determine how many personas were needed, the interviews were divided into persona groups. Persona groups are determined by looking for patterns in differences or similarities. The groups were based on the way they collected and developed learning materials.

We named the persona groups thinking about how these groups worked. The groups were based on the way they collected and developed learning materials:

The Collector

Supporting lessons

- Approach: Simple, little demands, adhoc and short term.
- Goals:
  - Clarifying existing lessons.
  - Connect to the reality/world of the students.
  - Variations in lessons.
  - To be sure of your teaching skills.
  - Prove the existing learning materials.
  - Connect to different levels in a group.
  - Didactics, keep order.

The Hunter

Structuring lessons or sets of lessons

- Approach: Extensive, many demands, growth, long term.
- Goals:
  - Take on new issues and subjects.
  - Make lesson schemes.
  - Guarantee educational quality.
  - The existing method is not up to standards.
  - Connect to different levels in a group.
  - Doing it better than the existing method.
  - Connect to the reality/world of the students.
  - No existing learning materials available.

From the interviews the most representing user was chosen for every persona group. Based on this interview the persona was written. Elements from other interviews completed the story of the persona. The interviews representing a persona group will provide multiple quotes and the one that gives the persona real credibility is added.

This resulted in the following persona groups and characteristic quotes (keep in mind that the names are purely fictitious and that the pictures are not pictures of the interviewees):

Sven Pateel: Higher Education (Hunter)

"For part-time education I combine the background of students and the learning materials in order to achieve new insights. That to me is very instructive and fun. But that requires other methods than standing in front of the classroom and speak."

Maarit Kotting: Higher Education (Hunter, developer of a digital education system)

"A digital board can be useful but it's not about me making notes but that my students can make notes. I use an ordinary projector and my laptop and you can go online anywhere here in this school."

Minke Ulrich: Higher Education (Collector)

"I really never find materials which I can use without editing. But what I do find online are separated materials and nice ideas, but ultimately I develop it all myself."

Elsbeth Weeda: University Master and Bachelor (Collector)

"Frankly, I think you have to ask yourself at any stage: Will a piece of chalk do the job, a whiteboard now, or must you create a complex digital rumpus."

Casper Wilson: University masters (Hunter)

"The basic lessons I'll tape on video, I'll teach them well once and they stand for the next five years. That's also the way I see Wikiwijs, a basic will arise and you pick up from there on."

Besides the personas, also a mental model was created. This model gave insight into the main activities about creating and using digital learning materials and the expectations of a system that will support these activities. Activities and support (both already existing and demanded) that were named by the majority of the interviewees are highlighted in this model, providing a starting point for system development. This led to the following list of activities and experiences.

Category (mental space): finding and using digital learning materials

- Let students perform experiments
- Share bookmarks
- Online contact outside class
- Efficiency is important
- Students assist in solving IT problems
- Search on tags or keywords
- All learning materials found need adaptation
- Refer students to specific sites
- Looking for different ways to perform educational activities
- Author and institution are important determinants for using specific learning materials

Category: creating or adapting digital learning materials

- Determination of the goal is the first activity
- Develop modules as a team
- Demands by students are the trigger

Category: sharing digital learning materials

- Use Slideshare for slide presentations meant for students
- Use intranet sites; only accessible for your own students
- Publish under an open license: the learning materials is created using tax money

- Use students work to share also

Category: communicating with students

- Combine Slideshare, blogs, twitter, e-mail
- Do not use the Electronic Learning Environment for communication (not suited)

During the interviews it was discovered that there is a big difference between teachers working with Master students and other teachers. Teaching masters students is on a much more personal level, having most of the time one to one conversations about a subject. Every student has its own subject he or she has chosen. The student works on experiments/does research and asks questions about the process and results. These questions are the bases for the lessons, or better the conversations between student and teacher. A large part of the master students come from outside the Netherlands and therefore the communication is in English. All the university teachers that were interviewed preferred teaching to master students because of the personal contact and complex and innovative subjects. No standard materials but finding out yourself. There was not enough time left to extend the number of interviews. Instead, a brainstorm session was organised with several stake holders from HE. This brainstorm more or less confirmed the results from the UCD research, but generated also a lot of other ideas which were not known before (e.g. that the main competitor for Wikiwijs in HE are the “closed” intranet repositories each institution has).

All Wikiwijs personas and mental model (both in Dutch only) can be downloaded from the Filterdesign blog (2010).

5. Conclusions

The UCD activities gave a good view on the activities teachers in HE perform around using and developing digital learning materials. It resulted in a first version of support for HE implemented in Wikiwijs. Among this support was connecting to repositories in other countries. Due to differences in standards for metadata, it was not yet able to support teachers in HE in sharing their own digital learning materials in Wikiwijs. It is expected that these differences will be solved in the next coming months.

There are still activities remaining to perform. Among these are conducting more interviews to refine the results for the teachers in University masters. Furthermore, the first version of Wikiwijs will be monitored to learn more about the use and the appreciation of the support by the teachers involved.

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Siegenthaler, Eva & Groner, Rudolf: Electronic Reading Devices in Distance Learning

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Abstract

Reading has always been a key competence in the field of learning. Printed books have been the main medium of knowledge distribution for centuries, but in the age of ICT and e-learning there is evidence that they might be replaced by electronic books (e-books). However, to figure out the effects of replacing classic paper books with e-book readers (e-readers), a substantial body of research is necessary. Especially, the effects on learning processes should be examined carefully before institutionalizing a change of media in education. In a two-stage study we investigate reading and learning with e-readers. In the first part, we investigated in an experimental laboratory study how users deal with e-readers. Using eye-tracking methods and questionnaires we compared 5 different brands of e-readers with a classic paper book and found significant differences. The result of our study shows that e-readers with e-ink technology provide good legibility, but it also shows that the current e-reader generation still has major deficits with respect to usability. In the second part of the study, learning with e-readers is investigated in a field study. In some classes of Swiss Distance University of Applied Sciences e-readers will be integrated in lessons and in the learning environment. A group of 25 students will be instructed to do all their reading assignments on e-readers, and also to use e-readers in open book exams. Their performance and their ratings will be compared to a matched control group of students who will be reading the same assignments on classic paper books.

1. Introduction

An e-book, or “electronic book”, is a digital version of a book. One can read an e-book using a personal computer (PC), a mobile phone or a personal digital assistant (PDA) by using a specialized software application for e-reading (e.g., Stanza). In addition to the specialized e-reading software, there are specialized e-reading devices. These devices are called e-book readers (e-readers) and they were developed for reading e-books. E-readers are becoming more and more relevant, and we will see a boom of further development of these devices in the near future.

The usage of e-books has an interesting potential in the field of learning. Reading has always been a key competence of learning, and it is probably the most important componential skill of learning. Additional features like a search function, an integrated dictionary, or an mp3 player offer new possibilities in the learning process. Instead of carrying around 10 or more books during a term, a student could possess one e-reader, which includes all books. These facts sound promising, but the question is: what are the effects of replacing a classic paper book by an electronic reading device? Previous studies show that e-books have the potential to enhance teacher-student interaction, and that students are interested in using e-book technology (Shiratuddin et al., 2003). Other studies show that students have problems with academic learning on e-books when using pocket personal computers or smart phones (Lam et al., 2009); and, in general, users have problems handling the current e-reader generation (McDowell and Twal, 2009; Siegenthaler, Wurtz and Groner, 2010; Thompson, 2009). Lam et al. (2009) found in their pilot study that students rated the enjoyment of reading from e-books as "not high", but the students also mentioned some additional features they considered to be very useful, like jotting down notes and/or highlighting text as important reading strategies for students, particularly when they were reading academic books. Other functions, such as navigation of lengthy text and viewing large images, were rated to need improvement (Lam et al., 2009). Another pilot study (Mc Dowell and Twal, 2009) was conducted at Seton Hall University, New Jersey. During one semester, students used the Kindle e-reader. The authors found that the majority of the students were not satisfied with the ease of navigation. Jakob Nielsen (2009) tested the new e-reader Kindle 2 by Amazon. In a self-experiment the author read half of a book on the Kindle 2 and the other half in a classic paper book. He found no difference in the reading speed between the Kindle 2 and the classic paper book and concluded that the Kindle 2 is well suited for linear texts. However, Nielsen (2009) sees problems in navigation; he considers the navigation of Kindle 2 as non-intuitive.

With the exception of the results reported above, there is not yet sufficient empirical research available investigating e-reading, when we take into account its large social impact, particularly in the field of learning. Our study has the aim to study e-reading and its effects on learning. Furthermore, we want to investigate how e-readers can become successfully integrated into the process of teaching and learning.

2. Methods

2.1 Experimental study

Our study is divided into two parts. In the first part we report on an experimental laboratory study. The aim of the study was to investigate reading processes on different e-readers in comparison with a classic paper book. Furthermore, we were interested in comparing the usability of different reading devices. We did compare five e-readers available on the market in Switzerland in 2009. Figure 1 shows the five e-readers. We tested 10 participants, 5 male and 5 female volunteers (age 16 to 71 years). All had normal or corrected to normal vision. The experiment started with a reading phase. Each participant had to read one segment of a text on every reading device. The sequence of presentation of the reading devices was randomized. While participants were reading, eye movements were tracked by using a Tobii X120 Eye tracker (manufactured and sold by Tobii

Technology, Sweden). The experiment took place under free head movement condition. The system provides corneal and pupil reflection signals with a sampling rate of 120 Hz and an accuracy of 0.5 degree of visual angle. The system was calibrated before each reading trial and re-calibration was performed if necessary. After the first reading phase, a usability test followed requesting participants to do some defined small exercises on each device. The usability test was accompanied by special questionnaires developed or adapted in our laboratory. After the usability test participants had to read the next segment of the text with another reading device while eye movements were tracked again. This procedure was repeated for each of the five e-readers and the classic book. Each successive reading-phase was designed as equal to the preceding phase except for using different text material (i.e., successive segments selected from an identical novel), which was counterbalanced, such that differences of text segments were distributed equally over reading devices and participants of the study.

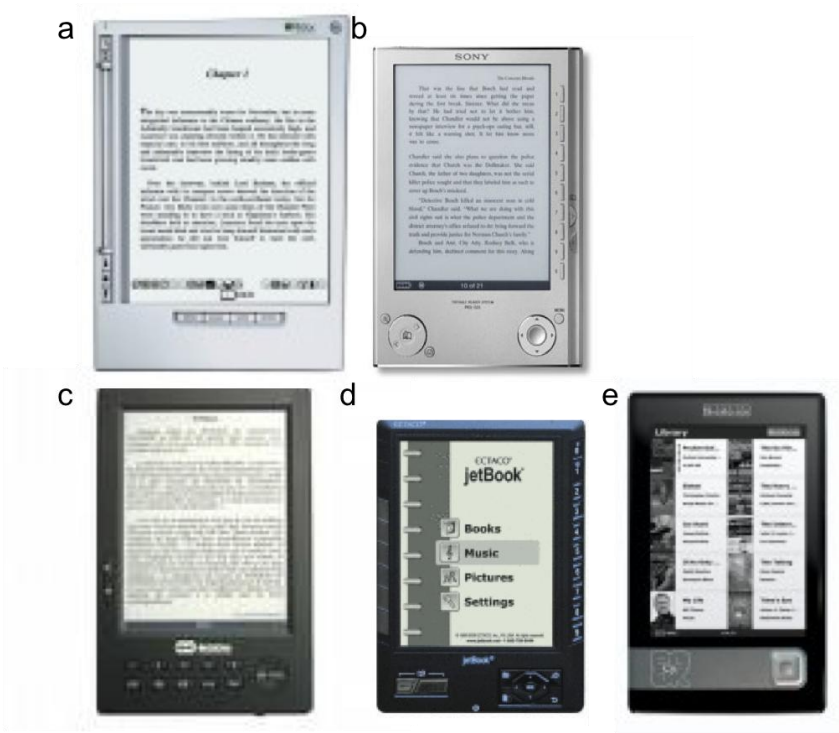

Figure 1: The e-Readers used in the experiment: (a) IRex Iliad, (b) Sony PRS-505, (c) BeBook, (d) Ectaco JetBook, (e) Bookeen Cybook Gen

2.2 Field study

The second part of the study is set up as a field study with real-life classes of a Bachelor program in Economy at Swiss Distance University of Applied Sciences during one semester. At this institution, the same module is being taught in four classes at different geographical locations of Switzerland. 25 volunteer students will take part in the e-reading pilot study. They are selected as volunteers and not through randomized selection because of ethical issues; however, the participants of the control group will be matched as close as possible to the participants of the experimental group. These students will read some selected reading assignment during one semester on an e-reader. For the present pilot study, the Sony e-reader that had been most successful in the experimental study was selected in a new version (Sony PRS-700). The participants will also do their open book exams using the e-books. A control group of equal size will be recruited reading the same text materials in classic paper books and using them also in the open book exams. During the study both the experimental and the control group will be tested by questionnaires and requested to make notes in learning diaries. Systematic information will also be collected from the teachers during the courses at different stages. Participants of the experimental group will have at any time the possibility to withdraw from the study and to use classic paper books for their work. Immediately after conclusion of the field study, the results of the questionnaire, the learning diaries and the amount of learning achievement will be analyzed and compared.

This field study will offer the possibility to compare the performance between students using e-readers with those relying on conventional classic books. The results of the field study will show problems and opportunities of e-book reading in the real life context of an actual semester course.

3. Results

3.1 Reading behavior

We first analyzed eye movement data. Analysis is based on the time codes of the video recordings. The start and stop times of reading and page-turns were coded offline for later statistical analysis. In addition, saccades were computed from the fixation files provided by the eye-tracker. Statistical analysis was performed using a repeated measure ANOVA with the within-subjects factor *reading device* (iRex, Bookeen, beBook, Sony, Ectaco, classic paper Book). If variances were not equal, instead of a F-test a Friedman-test was calculated.

Figure 2 and 3 illustrate the mean fixation duration and the mean numbers of fixations per text segment summed over participants and text segments. We found significant differences in fixation durations [$\chi^2(5)=25.063$, $p<.001$]. Fixation duration can be used as a measure of legibility. During fixations when the eye comes to a rest, readers take in visual information and perform perceptual and cognitive processing (Just and Carpenter, 1980; Heller, 1982; Groner and Groner, 1989). If a reader fixates a word or a letter for a longer time, it is taken as empirical evidence that the reader has problems in extracting visual or linguistic information. Under condition of equal text difficulty, which is realized in the present experimental design, we interpret prolonged fixation durations as caused by a degraded legibility.

Another parameter of reading difficulty is the number of fixations, i.e. how many samples of visual information were necessary to be collected for reading a given text. We also found significant differences in the total number of fixations [F(5,40)=3.609, p<.01].

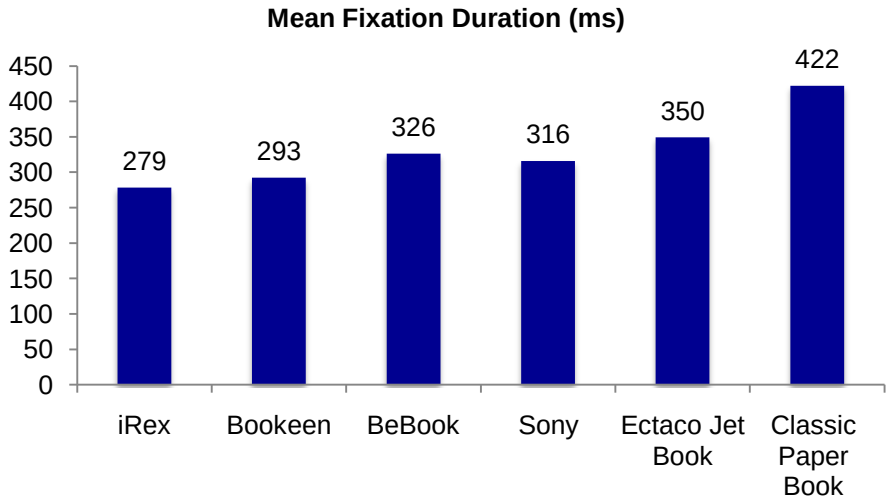

Figure 2*:* Mean fixation duration for the different reading devices.

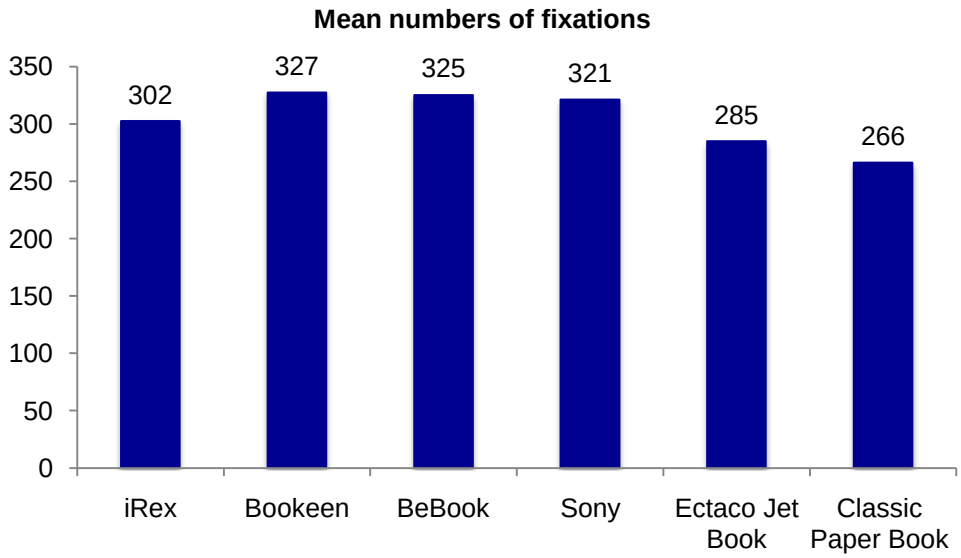

Figure 3*:* Numbers of fixations for the different reading devices.

We did not find significant effects on total reading duration [F(5,40)=0.857, p=.518], and we neither found significant differences in reading speed [F(5,40)=1.113, p=.369].

Numbers of page-turns differed significantly between e-books and classic paper book [$F(5,40)=22.729$, $p<.001$]. The number of page-turns when reading e-books was significantly higher than the page-turns when reading classic paper books.

In addition, we measured the luminance contrast between font and background by measuring Weber contrasts. Table 1 illustrates these results The classic paper book still has best contrast (black font size on white background), but the contrast of the e-reader display is still comparatively good.

Table 1*:* Weber-contrasts C_W: black font (I_F) on white background (I_B). *(I ... Luminance in cd/m^2)*

	Font luminance	Background luminance	Weber contrast
Reading Device	I_F	I_B	$C_W= (I_F – I_B)/I_B$
iRex	3.17	17.8	-.82
Bookeen	3.91	17.7	-.78
BeBook	3.52	17.8	-.80
Sony	4.10	17.9	-.77
Ectaco	2.10	13.4	-.84
(Paper	2.91	30.6	-.90

3.2 Usability of the reading devices

Figure 4 shows the results of the usability questionnaires converted into a Likert scale with 1 representing the lowest score (extremely poor usability) and 6 the highest score (best possible usability). We found significant differences in the categories navigation [$\chi^2(5)=25.064$, $p<.001$], design [$\chi^2(5)=20.388$, $p=.001$], functionality [$\chi^2(5)=19.265$, $p<.01$] and ease of handling [$\chi^2(5)=15.111$, $p<.05$*].

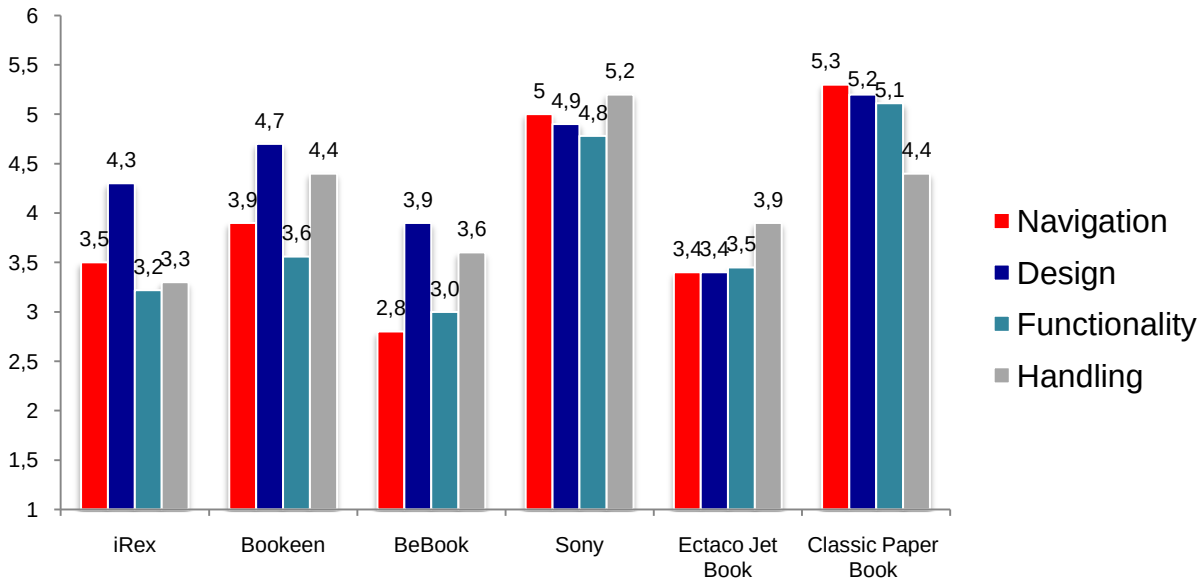

Figure 4: Results of the usability questionnaires converted into a Likert scale with 1 representing the lowest score and 6 the best score, mean values and standard deviations.

A total usability score was calculated using the following formula: = *Mean (usability questionnaire score)+ [mean (mean mark navigation +mean mark orientation)] + [mean (mean mark design + mean mark handiness)] + user mark for reading device.* We found significant differences in the total usability score [$\chi^2(5)=23.197$, $p<.001$]. The most usable e-reader is the Sony reader (mark: 5), almost identical in usability as compared to the classic paper book (mark: 5.5). The Bookeen- (mark: 4.5), the iRex- (mark: 4) and the Ectaco Jet Book reader (mark: 4) were close to each other. The BeBook-reader has an insufficient usability (mark: 3.5). Data analysis also showed that the majority of participants would not buy an e-reader of the current generation. The majority of participants see the e-reader more as an addition to the classic paper book than as a replacement.

4. Conclusions

The first part of our study shows that the legibility of the current e-reader generation is good. E-ink technology enables a reading process, which is very similar to the reading process on classic paper books. Moreover, in some situations e-readers can even have a better legibility. For example, people with visual impairment have the possibility to increase font size on e-readers. We should also mention that different font size could have had an effect on eye movement data. Because font size in the classic paper book was very small, some participants (especially older participants) might have had problems with reading. This could have resulted in longer fixations. We should be aware that the possibility to increase font size is associated with better legibility.

However, as opposed to the positive findings with respect to legibility, the results of the usability ratings show a major deficit in usability of the current e-reader generation. Participants had great problems using the e-readers. This is a crucial problem: It was found that the actual usability of an e-reader has a strong effect on the subjective ratings of legibility. This implys, that if a person is not

able to use a reading device efficiently, then he or she does not like reading with it. This fact is very important for the context of learning and teaching. Future e-reader generations should have a better and intuitive usability, otherwise application in the context of learning would be problematic. Students have more user needs compared with leisure readers; for example students should have the possibility of highlighting text parts, they must have the possibility to make notes and they need a fast search function. These user needs, and some more which will come up as a result of future usability studies, should be a challenge for e-reader producer.

In the second part of our study we will investigate the user needs of students. In a field study we want to detect problems with the current generation of e-readers in the context of learning and teaching. More research in the field of e-reading is necessary. With our study we want to do a first step in this direction and we hope that other studies will follow.

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Söderström, Mikael & Hedestig, Ulf: Learning Tools or Learning Infrastructures? Models for Understanding and Designing Sustainable Learning Spaces

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Abstract

Today web 2.0 applications have entered the e-learning arena, with teachers and students using blogs and wikis in learning activities as well as for private purposes. One benefit of web 2.0 is that teachers and students can easily create spaces for interaction and learning without any expensive investments in software and extensive training courses. On the other hand we can find a perspective that emphasize the necessity to create more efficient and effective infrastructures, integrating the whole range of processes and activities that take place in education. The purpose of managed learning environments is to integrate traditional learning environments with administrative tasks such as enrolment, counselling, student record systems, etc. However, do we have appropriate models for understanding and designing sustainable virtual learning spaces? We argue that if technology enhanced learning is to become a key component for innovation and growth in our society it is of importance to recognize that we are dealing with a complex matter. Use of virtual learning spaces has implications on work practices, organizational structures, and communication and coordination behaviours. We claim that we lack appropriate models for understanding the learning setting where technology, practices, learning theories, and administration are intertwined in a complicated web of dependencies. The paper concludes with a discussion of limitations of existing approaches for design of sustainable virtual learning spaces. Finally, five alternative models are presented that capture organisational change in a more comprehensive way and hence provide better support for both understanding and design of sustainable virtual learning spaces.

Introduction; a new context for higher education

Today online learning in higher education is growing faster than traditional face-to-face education. According to Allen and Seaman (2010) more than 4,6 million students were taking online courses fall 2008 in US. This was a 17 percent increase from previous year, compared to 1,2 percent growth of the overall higher education student population. The annual ECAR study of undergraduate students shows that access to information technology continue to be very high, around 98% with 8 of 10 having computers not older than one year (Smith et al., 2009). According to the same survey 9 of 10 respondents were using social networking websites or instant messaging, and use of learning management systems also seems to be very high. Almost 89% of the respondents answered that their courses was taught with such systems. However, only 45% of the respondents thought that instructors and teachers used IT effectively in their courses.

The overall global trend is that the number of students in higher education will continue to grow, and women will be a majority of the student population (OECD 2008). Further, the variation of the student population will increase, with greater number of international students, older students and part-time working students. Some countries and regions will not have this growth in the number of students due to decline among young people, for instance North and Midwest US (Meyer 2008) and Sweden. Sweden and England will have significantly decline of the 18-20 year old population from 2012 to 2020 (Bekhradnia and Bailey 2008).

Furthermore, the last years we have experienced the worst period of decline in global economy since the 1930s. Sometimes this can be a benefit for higher education since governments facing this kind of situation often tend to put in more resources in education and training with the aim of enhancing the economical growth. However, this is not always the case. Federal governments can prioritize other areas such as health care, elderly care and K-12 education. In the report 'Responding to Recession: IT Funding and Cost Management in Higher Education' (Goldstein, 2010), it is stated that the long-term economy will put pressure on universities ways of using technology. When the characteristics of the students are changing and as their use of technology outside the formal education context[126] influences their way of learning, it is of strategic value to find more effective ways to compete in the global knowledge-based economy.

In these times of transformation of higher education and its context universities may find it difficult to decide how to spend their limited resources. Stakeholders such as state government, students and teachers may start putting pressure on universities to deliver efficient and appropriate services. A decline of resources from state governments may create urging requirements on universities to rationalise but at the same time maintain high quality. Several higher learning institutions have tried to accomplish rationalisations by integrating existing systems into so called Managed Learning

[126] By the expression 'outside the formal education context' we mean the technology that students use when not participating in educational activities, for example Facebook, Twitter, Wikis, etc.

Environments (MLE). MLEs involve integration of many separate systems, for instance student record systems, library systems, management information systems, learning management systems, etc. However, as students every day use of information technology seems to grow today many of them can be considered as mature users. They use technology for different purposes regardless if it is at work, at school or during their leisure time. Their demands on universities may be to adapt to services and technologies similar to those used in other contexts that already provide efficient services based on new technology, for example e-commerce, e-government, e-health and web 2.0 applications[127]. Furthermore, teachers may want to use web 2.0 applications such as Facebook and YouTube for teaching and learning and start making requirements to university CIOs to integrate web 2.0 applications into the university information infrastructure.

When so many different demands are put forward by the stakeholders it becomes a challenge for universities to decide how to allocate limited resources and at the same time maintain and hopefully enhance the quality of service. Here an obvious question arise; Is it better to spend resources on developing Managed Learning Environments than spending them on deploying new innovative learning environments based on web 2.0 applications? These two options may be seen as two perspectives describing two different ways to design sustainable virtual learning spaces with respect to requirements from different stakeholders.

In this paper we aim to discuss the question: Do we have appropriate models for understanding and designing sustainable virtual learning spaces? We argue that if technology enhanced learning is to become a key component for innovation and growth in our society it is of importance to recognize that we are dealing with a complex matter. Use of virtual environments has implications on work practices, organizational structures, and communication and coordination behaviours. Research on other virtual contexts, for instance e-commerce and Internet banks, shows changes in the communication patterns between for example customers and banks. Our belief is that we currently lack appropriate methods for understanding the learning setting where technology, practices, learning theories, administration are intertwined in a complicated web of dependencies.

The rest of the paper is structured as follows. We first describe the use of web 2.0 applications in higher education, and discuss the strengths, weaknesses, opportunities and threats that may emerge in relation to this kind of software. We then present an overview of the use of Managed Learning Environments in higher education, and describe the advantages and disadvantages that these environments may have. After that we define the concept of virtual learning space and discuss the difficulties involved in the design of learning spaces. Further, the paper concludes with a discussion of limitations of using existing approaches, such as tool or product focus and top-down and bottom-up focus, for design of sustainable virtual learning spaces. Finally, five alternative models are presented that capture organisational change in a more comprehensive way and hence provide

[127] These kinds of applications are also frequently called social software or social computing. For the sake of simplicity we will use the terms web 2.0, web 2.0 technology and web 2.0 application in this paper.

better support for both understanding and design of sustainable virtual learning spaces.

Web 2.0 applications in higher education

The last four or five years we have witnessed a growing interest in higher education for web 2.0 applications (Sclater 2008). These applications may, among others, be blogs, wikis, virtual words, social networking sites and photo and video sharing sites (Redecker 2009). Web 2.0 applications (or social software) can be defined as '[…] applications and services that facilitate collective action and social interaction online with rich exchange of multimedia information and evolution of aggregate knowledge.' (Parameswaran and Whinston 2007, p. 762).

The growing interest for web 2.0 applications is clearly shown in a large study of what they called Learning 2.0 projects in Europe and the rest of the world that the research project Learning 2.0 – the Impact of Web 2.0 Innovations on Education and Training in Europe conducted a few years ago. Data on Learning 2.0 projects was gathered by 1) reviewing the literature on new practices in education, 2) identifying relevant initiatives (through desk research activities), and 3) a stakeholder consultation that was carried out by allowing stakeholders to directly feed into a Learning 2.0 case database set up by the research project (Redecker 2009). The database collects some 250 Learning 2.0 initiatives, but Redecker (2009) emphasises that as contribution was voluntary and participation varies over different countries and educational environments, the database most probably does not provide a full picture of the current adoption of web 2.0 applications by educational institutions. However, the Learning 2.0 case database shows that the interest for using web 2.0 applications in education is large and plausibly growing. The cases in the database stretches from blogs used as a tool for developing a cross circular collaborative project between two primary schools in England and Spain to wikis used as a knowledge management and problem solving tools in higher education.

Although many are positive to the opportunities web 2.0 applications offer there are also critical voices. For instance Schroeder et al. (2010) writes that

'Social software has the potential to significantly enhance teaching and learning practices, but in order to leverage these benefits and to use the diverse applications in a sustainable way, educators need to be aware of the risks associated with the adoption of such tools, so as to be able to mitigate these risks.' (Schroeder et al. 2010, p. 161)

They furthermore claim that there are few studies that investigate risks and downsides with the use of web 2.0 applications in educational settings. Therefore they conducted a study in which they set out to identify strengths, weaknesses, opportunities and threats of use of web 2.0 applications in higher and further education settings. Data was collected from 20 UK-based social software initiatives[128], and their analysis not only covers benefits and drawbacks for teaching and learning but

[128] By 'social software initiative' Schroeder et al. (2010) means a project, a learning activity, or a situation where a web 2.0 application is used.

also broader implications of web 2.0 applications for the educational institutions. The guiding framework for the analysis is the classical SWOT analysis, which typically is used to characterise a situation in a systematic way with regards to its internal strengths and weaknesses and its external opportunities and threats. Finally, it is important to notice that the cases discussed by Schroeder et al. (2010) were directly led by educators or a team of educators on a specific course or programme. None of the cases were a university-wide initiative.

The main strengths of web 2.0 applications found by Schroeder et al. (2010) were that they help building social relationships, improve learning and enhance communication between students and educators. Social relationships are built by the ability of the applications to support community spirit among students and overcome isolation and geographical distance. Learning is improved through support of collaborative learning, reflective learning, independent learning and problem solving skills, and development of online communication skills. Communication between students and educators are enhanced by almost real-time feedback or support from educator, improved relationship between educators and students, and better understanding of students' needs.

The primary weaknesses of web 2.0 applications identified by Schroeder et al. (2010) were workload issues of educators and students, limitations in the quality of interaction, and uncertainties of ownership and assessment. The workload issues imply that web 2.0 applications create additional workloads for students as well as educators. The limitations in the quality of interaction includes, for instance, limited socializing and selective or disruptive interaction among students. The uncertainties of ownership and assessment concern assessment of collaborative activities and ownership issues of content in public or collaborative spaces.

The major opportunities of web 2.0 applications recognised by Schroeder et al. (2010) were showcasing work to the public and creating and maintaining communities. The possibility to showcasing work to the public may incentivising students to create high quality work, and contribute to their employability. The ability of web 2.0 applications to facilitate the creating and maintaining of communities may lead to development of alumni communities and help to foster cross-institutional collaboration.

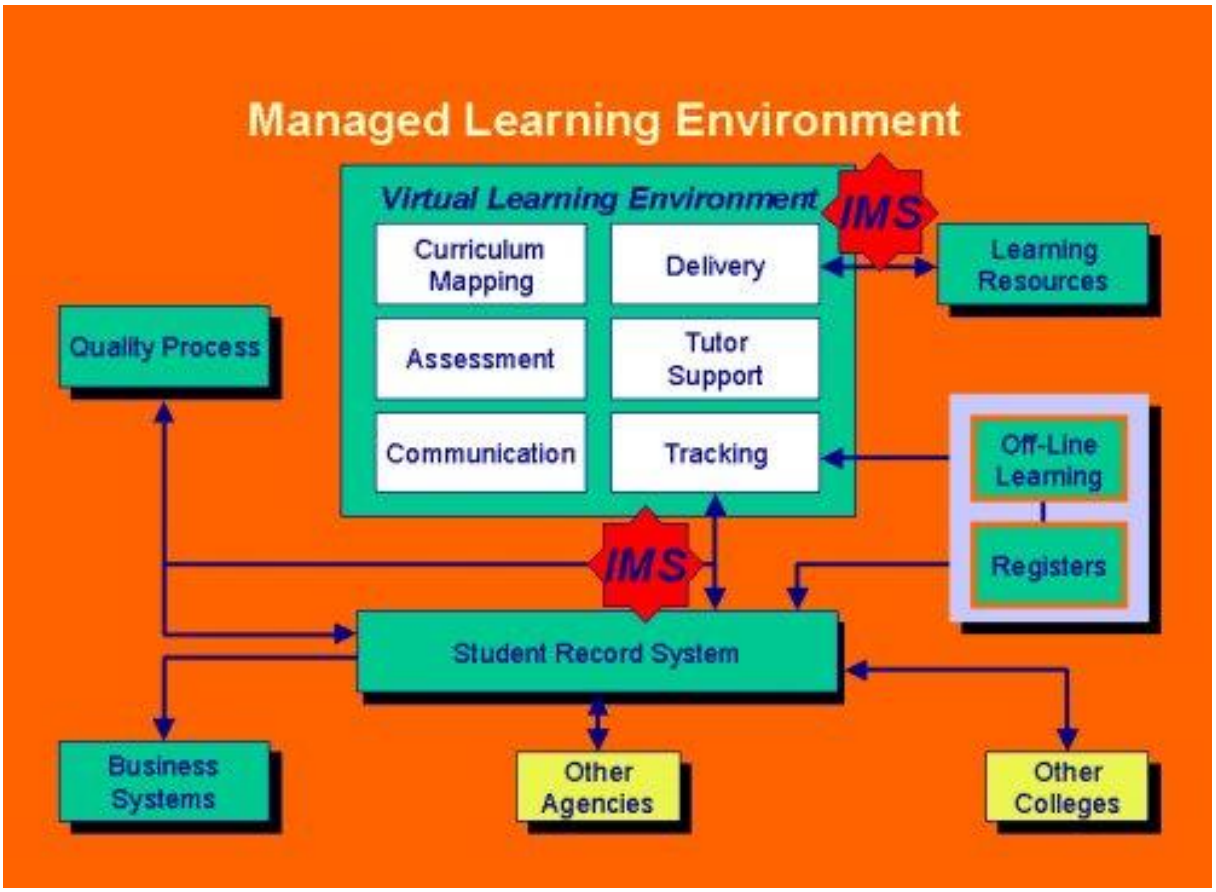
The capital threats of web 2.0 applications discovered by Schroeder et al. (2010) were unable to support and ensure the reliability of the applications and consequences of illegitimate use. Unable to support and ensure the reliability of the applications concern difficulties to ensure reliability of the service and difficulties to adapt publicly available tools as well as the problem of resources being misappropriated or even disappearing. Illegitimate use may have consequences such as students publishing illegitimate content that can affect the institution's credibility. The risk of illegitimate use also implies that the institution needs to protect student space and students' interaction within the web 2.0 application from outside interventions.

It is clear from the investigation of Schroeder et al. (2010) that web 2.0 applications not only have strengths and bring opportunities; they also possess weaknesses and bring threats that have to be managed by the educational institution utilising them.

Managed learning environments in higher education

Originally, the term Managed Learning Environment (MLE) was used by the Joint Information Systems Committee (JISC)[129] when they organised two events in London and Manchester in 1999 (Holyfield and Liber 2003). There does not exist any common agreed definition, but loosely MLEs has been defined as environments that concern the whole institution. MLEs involve integration of many separate systems, for instance student record systems, library systems, management information systems, learning management systems, etc. A distinction between MLEs and virtual learning environments (VLEs) was made in a report edited by the The Social Informatics Research Unit at University of Brighton (2003). In this report the following definitions was made

'Managed Learning Environment (MLE) refers to the whole range of information systems and processes of an institution (including its VLE if it has one) that contribute directly or indirectly to learning and the management of that learning. Virtual Learning Environment (VLE) refers to the component(s) within an MLE that provides the "online" interactions of various kinds.' (The Social Informatics Research Unit at University of Brighton 2003, p. 13)



[129] JISC is an independent advisory body in the UK that works with further and higher education by delivering strategic guidance, advice and opportunities to use ICT to support learning, teaching, and administration (http://www.jisc.ac.uk/aboutus/glossary.aspx#j).

Figure: MLEs and VLEs explained (JISC 2002).
According to the definition above existing systems at a university that contain information that enhance the learning environment are included in a MLE. A virtual learning environment or learning management systems (LMS) is considered to be a sub-system to the overall MLE.

In a sense MLEs are what Hanseth (2000) calls information infrastructures. In Hanseth's view 'an infrastructure is an evolving shared, open, and heterogeneous installed base' (Hanseth 2000, p. 60). Hanseth (2000) claims that this means that infrastructures have five key characteristics. First, infrastructures have a supporting or enabling function. They are designed to support several different activities, which is opposed to for instance web 2.0 applications that normally are designed to support one way of working within a specific application domain. Second, infrastructures are shared by a larger community. They are shared in the sense that it is the same single object that is used by all users, although it may appear differently. Third, Infrastructures are open in the sense that in principle there are no limits to the number of users, stakeholders and vendors involved, and there are no limits to the number of technological components, application areas, network operators, and so on. Fourth, infrastructures are heterogeneous in at least two ways. First, they consist of more than technological components. They also include humans, organisations, institutions, etc. In this way they are rather socio-technical networks. Second, infrastructures are composed of ecologies of sub-infrastructures. That is, infrastructures are layered upon each other just as software components are layered upon each other in other kinds of information systems. Fifth, and finally, an infrastructure is an installed base. As all elements in an infrastructure are connected, and it takes time to build large infrastructures. Over time new requirements appear to which the infrastructure has to adapt, but the whole infrastructure cannot be changed instantly – the new has to be connected to the old. Thus, infrastructures develop through extending and improving the installed base. In this way the old, that is, the installed base, heavily influences how the new can be designed.

However, the so called MLE approach has been criticized for making universities more centralised and change their focus from teaching and learning towards administration. Unsworth (2009) has expressed this development as an integration of sub-systems that eventually become a large monolithic system that provide control to administrators. The cost of such approach is that it may prevent innovation by faculty, staff and students and in the end make the university an inefficient information organisation.

Virtual learning spaces

As said above, the last few years the use of web 2.0 applications in educational settings clearly has grown. We are observing how these applications enter the e-learning arena, with teachers and students using blogs and wikis in learning activities as well as for private purposes. We can also find several universities represented in Facebook, on YouTube, in iTunes, etc. One of the main benefits of web 2.0 is that teachers and students can easily create spaces for interaction and learning without any expensive investments in software and extensive training courses.

On the other hand we can find a perspective that emphasize the necessity to create more efficient and effective infrastructures, integrating the whole range of processes and activities that take place in educational environments. The purpose with MLEs is to integrate traditional learning environments with administrative tasks such as enrolment processes, student counselling, student record systems, quality systems, business systems, etc. To accomplish this we need accurate ICT-policies that handle the interoperability between systems.

At the end of the day, the argument put forward so far in this paper boils down to a question regarding how to design sustainable virtual learning spaces. Regardless of which of the above perspectives an educational institution prefers, the issue concerns the design of learning spaces.

In this paper we adopt Brown's (2005) definition of learning space: "Learning spaces encompass the full range of places in which learning occurs, from real to virtual, from classroom to chat room." Moreover, the developments in the blended learning area have led to a situation where more and more learning spaces comprise both virtual and physical elements. However, in this paper we have limited our discussion to only comprehend virtual learning spaces.

The subject of learning space has received more attention during the recent years; see for instance JISC 2006, Oblinger 2006, SMG 2006, and Scottish Funding Council 2006. These authors present examples of how to design learning spaces that are more appropriate for students and teachers needs. Lomas and Oblinger (2006) stress the issue of student habits and practices and argues that they will have impact on future learning spaces. New student's practices that are adopted are for instance the extensive use of information and communication technologies. This creates new requirements for learning spaces. According to quite a few researchers characteristics such as digital, mobile, independent, social and participatory should be taken into account in the discussion of future learning spaces.

The discussion above indicates that design of learning spaces is a quite difficult task. Jones, Dirckinck-Holmfeld & Lindström (2008) emphasises this and argues that virtual learning spaces in higher education alone is complex settings that involve management, administration and ICT as well as teachers and learners. Organisational aspects as well as pedagogical aspects influence practices in these environments. However, we lack established methods for evaluating the interrelationships between all the different actors involved in the integration of technology, support, collaboration, teaching, learning, and administration of technology in learning spaces (Greenhow & Belbas, 2007).

Concluding discussion; designing sustainable learning spaces

To summarise the discussion so far, we have argued that there exists no design method for virtual learning spaces that cover the social and organisational habits developed in a larger context. Much has been done, i.e. organisational models and structures for designing virtual universities or solving interoperability problems with learning objects, but methods that analyse affordances of

technologies and developmental processes of work practices that change the setting over time are very little explored. Also, the use and design of virtual learning spaces traditionally have had a product focus, that is, a focus on designing devices, artefacts, systems or services. Although there exist attempts to develop spaces that support "communities of practices", there has been few investigations into how such learning spaces should be designed. In general practices are difficult to design – they tend to evolve and develop dynamically over time. Design should therefore consider the appropriation of technologies and their integration into practices, rather than trying to optimize the product or tool with multiple features.

If we take a closer look at how virtual learning spaces utilising web 2.0 applications often seem to be designed we can see that this to a large extent seems to be bottom-up design processes. In the study of use of web 2.0 applications conducted by Schroeder et al. (2010) they identified suitable cases by having candidates to nominate themselves. This nomination was done by distributing calls for participation through a dedicated higher education mailing list. They got 40 self-nominated candidate cases, and based on pre-defined selection criteria Schroeder et al. judged 26 to be suitable cases. Of these 26 cases only six were university-wide initiatives. The rest were initiatives that were led by educators or a team of educators on a specific course or programme. In other words, these 20 initiatives are clearly bottom-up design processes. According to de Freitas and Oliver (2005) the significant flaw with bottom-up processes is that they often create pockets of excellence and areas of inactivity. This is due to their tendency to be lead by innovative and enthusiastic educators operating on their own or within a team of educators. From the viewpoint of the institution they appear as uncoordinated.

If we examine how virtual learning spaces utilising MLEs often seem to be designed we can see that this to a large extent seems to be top-down design processes. MLEs are large, expensive learning spaces involving the integration of many systems that were separate systems before being integrated into a MLE. This implies that MLEs become information infrastructures for higher education institutions. Normally, the idea is that all educators, students and administrators at the institution should use the MLE. de Freitas and Oliver (2005) claim that the major flaw with top-down processes is that they often are not enough consultative and inclusive. This is due to the fact that they usually are instigated and led by members of top management and then propagated throughout the organisation. From the viewpoint of the institution they appear as coordinated and controlled.

As said above, Jones, Dirckinck-Holmfeld & Lindström (2008) argues that virtual learning spaces in higher education alone is complex settings that involve management, administration and ICT as well as teachers and learners. Organisational aspects as well as pedagogical aspects influence practices in these environments. The complexity of virtual learning spaces implies that the design of them in a sense is a kind of organisational change. This denotes that the design of sustainable virtual learning spaces not only requires good understanding of management, administration, ICT and pedagogy, but also of organisational change in general. However de Freitas and Oliver (2005) argue that both the bottom-up and top-down approach '[…] fail to describe the complexities of the organisational shape and reflect a regressive hierarchical model that is increasingly challenged in practice.' (p. 8). Instead they suggest five different models of organisational change: Fordist model, The evolutionary model,

The ecological model, The community of practice model and The discourse-oriented model. Each of these models offer a distinctive way of understanding organisational change, and are drawn from various disciplinary traditions.

The Fordist model of change is on macro-level, and follows Taylor's idea of scientific management to a large extent. This model values aspects as increased specialisation, division of labour, and industrialised working practices. The second macro-model is the evolutionary model. This model is based on Darwinian evolutionary theory, which has been developed into a theory of organisational change. Here organisational change is an evolutionary process consisting on the evolutionary processes variation, selection, retention and struggle. The ecological model of change has its roots in information systems development and is an attempt to capture the complexities involved when developing these kinds of systems (Nardi and O'Day, 1999). This model regards information ecologies as complex systems of people, practice, values, and technologies in a particular environment. When a change occurs in one element, effects can be felt throughout the whole system. The community of practice model is on micro-level and is a socially oriented model of change developed by Wenger (1998). This model differs from the other models by focusing on organisations as collections of individuals rather than as systems or organisms. Practice is understood as essentially local and meaning develops by mutual interpretation with other actors. The last model is the discourse-oriented view of change. It is quite similar to the situated theories presented by Wenger. Here the process of change is not regarded as a rational activity, it is rather treated as being fluid, chaotic and complex (Fullan, 1994). According to de Freitas and Oliver (2005) the key is '[…] the conversations that people have – by negotiating practices and their meaning, forms of work are legitimated or de-legitimated and lessons are learnt.' (p 7).

Although our presentation of the five models above perhaps is a bit too short we hope that it appears that these kinds of models can be useful for higher education institutions both when it comes to understanding and designing sustainable virtual learning spaces. de Freitas and Oliver (2005) argues that each of the models has inherent problems, but they mean that this is inevitable given the specialised context and purposes for which each model was developed. It may also be useful to combine different models on macro- and micro level as this may improve the analysis of change both at central and local level. Perhaps the most important insight from the models is that they describe how organisational change takes place and what its impact is (de Freitas and Oliver, 2005).

Finally, we believe that we need better understanding of the design of sustainable virtual learning spaces to be able to create the next generation of learning strategies for higher education. Innovations within the ICT area will continue and new practices and communication behaviours will develop over time, but the risk is that without a proper understanding we will continue to sub-optimize our resources and continue to develop tools that will have minor impact in higher education. Despite decades of promises of the flexibility that is provided by ICT most of the investments in hardware and software has not yet reached any higher level of success compared to other sectors in society, both private and public.

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Tikhomirova, Natalia V. & Gritsenko, Anatoly G. & Tsarkov, Evgeny N.: Global Learning Environment for Lifelong learners

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Abstract

Every year several million people in the Russian Federation are trained or retrained to acquire new skills. MESI and EOI have a great experience in teaching Lifelong learners in various areas.
The Global Learning Environment is built on the principles of E-xcellence that is used to support the implementation of all the types of educational programs. This environment brings together educational resources, students, teachers, and employers for Lifelong learning.
GLE tools and technologies allow for the most effective and comfortable delivery of the training to LLLearners.

Introduction

Rapid development of the society causes education to undergo tremendous changes. New providers of educational services including providers of high and additional professional education enter the market in the circumstances of “education without borders”. These providers are open, electronic, allocated universities. Their programs are available with no location or time limitations. As a result of wide application of information technologies in education, they way the service is rendered as well as the role of the educational organization in the system of higher education are also changing.
Electronic education (eLearning) provides students with a number of advantages: an opportunity for the student to study independently and at their own pace, and the opportunity for the service provider to take into account individual needs of the target customer when the content is developed and/or rapidly updated (within 1-2 hours). eLearning becomes particularly timely nowadays when business is done “at the speed of a thought” and modern businessmen are located one from another at a distance of a mouse click.
Several Russian universities launched Electronic education (eLearning) projects in the first half of the 1990s [1]. However, as of today there are still a number of serious problems that prevents this sphere from further development. First problem is the lack of normative legal documents base of e-learning support. Partly the problem stems from the teaching staff being insufficiently ready to apply new education technologies. Partly the problem is caused by the deficit of appropriate equipment

and software. Secondly, the usage of information and communication technologies and Internet is still growing in Russia. *25 million people in Russia use social network services at least once a month. Annual increase in the number of users of social network services is predicted to reach an average of 23% by 2014 [2]. As a part of national project "Education", federal target and department programs large funding is assigned to create and develop new educational technologies that are based on information and communication technologies. In accordance with the strategy of informational society development in the Russian Federation and its implementation plan [3] signed by the President in February 2010, 42.5 and 50.0 million rubles are to be spent in 2010 and 2011 respectively in order to create a multilevel federal system of electronic distance education. 205 and 230 million rubles are allocated in 2010 and 2011 respectively for professional training and retraining of the teaching staff at the universities. The training would focus on disciplines in the area of information and communication technologies. 3.337 and 3.703 billion rubles are to be spent on the development of distance education programs for handicapped children who would study basic programs at home. In 2010, 184.0 million rubles were allocated for professional training of the teaching staff to help them adopt and effectively use electronic study technologies in education.*

In order to remove the barriers that hinder the growth and development of eLearning in Russia, united and coordinated efforts of government, educational system, business community, and society would be required. International consortium "Electronic University" brings together people interested in eLearning. These people are located in various countries and represent a number of educational institutions, companies, enterprises, and non-profit organizations. They cooperate and share creative ideas, scientific research results, and hands-on experience in the area of e-learning and knowledge management. The regional network of the Consortium brings together more than 180 organizations, more than 200 000 students, and a teaching staff of more than 15 000 professionals. Through its network and technologies the Consortium develops organizational, technological, and methodological environment in Russia and the countries of the Commonwealth of Independent States that becomes the foundation for educational accessibility and quality – the Global learning environment (GLE).

The goals of GLE are as follows**:**

- create a system for training of the working population in order to meet the demand of the State and business for such labor;
- ensure real accessibility of the main educational programs of the leading Russian universities for citizens located far from these institutions;
- increase the quality level of educational services through customizing the education process and though the usage of modern education resources and electronic content that are developed by key specialists;
- simplify access to the information which is open for distribution and provide access to open education resources;
- provide for active export of Russian education services abroad.

Members of the Consortium are often co-organizers and members of parliamentary hearings, discussions, meetings, round tables that take place at the Federal Assembly of Russian Federation. This work helps reach the agreement on key positions. It serves are the basis for constructive proposals in matters of electronic education and its legislative support. Consortium is the initiator and organizer of the International forum E-Learning Russia [4].

The key aspect of the GLE is to create innovative educational centers. These centers would develop intellectual potential of the local communities that have access to the knowledge bases of regional universities. The main goal of the centers is to create an intellectual environment in the local communities that is directed towards progressive technologies and knowledge economy. In other words, it is about creation of the Institute of development of a small town.

Goals that are solved by innovative and educational centers:

- Enlightenment work, dissemination of computer literacy;
- Provide wide access to the information resources (including the usage of electronic libraries);
- Implement educational programs of different levels with the usage of electronic devices;
- Provide consulting services, including assistance to the development of small-scale enterprises;
- Organize knowledge bases of territorial educations of various directions;
- Coordinate the implementation of IT-based projects and programs in the local education.

An important component of GLE is the association «Education in the information society» [5] that brings together e-learning professionals. One of primary goals of the network is to create an integrated scientific and educational environment that is based on the application of electronic education technologies, informatics and telecommunications means. This environment will make it possible to realize informational cooperation and will foster knowledge sharing in research projects.

Thereby, in accordance with the national strategy of the construction of information society and knowledge society in Russia [6] the International Consortium «Electronic University» brings together and coordinates the efforts and potential of regional universities, scientific, and educational communities. In so doing it broadens access of citizens to educational, consulting, and legal services and informational resources.

Today modern preparation of quality staff for all spheres of economy is the only way to ensure the competitiveness of the country on the world market. Life-long learning that makes it possible for continuous actualization and the quality improvement of knowledge for working population has become the main means to ensure such competitiveness. Today ICT and E-learning are the only opportunity to satisfy educational needs of an individual or social groups. They provide the education with the necessary level of accessibility, scalability and access to specialists from all spheres of activities. The application of electronic education technologies makes it possible for knowledge delivery to the farthest regions of the country, which is of particular importance for Russia. We can reduce the gap in the level of knowledge and qualifications between those who have access to institutions of higher education and those who do not have access or cannot afford it. E-learning is becoming a part of long-term evolution of education and educational technologies, and a part of experience for everyone who is studying or teaching. It becomes especially important when education is the foundation for the innovative system of any developed country.

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Tikhomirova, Natalia V. & Gritsenko, Anatoly G. & Tsarkov, Evgeny N.: Implementing European quality standards in Russia

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Abstract

The implementation of e-learning technologies at educational institutions reveals hidden problems within the organization: low quality of training materials, great number of materials that are out-of-date, ineffective interaction among the educational process participants, low involvement and motivation of students and faculty, problems related to information technologies.
Despite the great opportunity for e-learning development in Russia, e-learning quality criteria are not given the attention at the national level. There are however projects that intend to develop and implement the quality criteria at the institutional level. Some of these projects are based on European quality criteria.

Introduction

Having actively entered into the Bologna process Russia declared the quality of education as a priority. That priority was declared in accordance with the national program of development and modernization and in line with the world trend of the development of national educational systems.
Education quality assessment implies the assessment of the quality of students' educational achievements and of the educational process itself. Russian specialists in the area of the education quality assessment have adopted the definition of the quality as an integral characteristic of the educational system that reflects the degree of correspondence between achieved educational results and standard demands, social and personal expectations.
The assessment of quality of an institution of higher education is carried out by the following criteria: the results of the institution (assessment of knowledge, abilities, skills – assessment of education that has been delivered) and conditions of the educational process (facilities, study materials, quality of professors and teaching staff (PTS), study programs and so on – assessment of the institution potential).
In Russia the following directions of quality assessment are used:

- Evaluation of the correspondence between conditions of the educational process and license requirements;

- Evaluation of the correspondence between goals, conditions, content, and results (efficiency) of the educational process and accreditation characteristics of an institution of the given type or kind.

During the assessment a number of metrics is used: the total area of the educational facilities (number of square meters of the area depending on a number of students), hard-copy versions of textbooks, percentage of PTS that is on the staff and has a scientific degree, the amount of funding for scientific and research work and so on. These characteristics considerably limit the opportunities for the development of Russian universities that provide quality education through optimal allocation of their resources. Moreover, these metrics give firm frames; define one method of work for all high education institutions, restricting flexibility of its approaches for the achievement of maximum educational result. At the same time the flexibility of the institution, its capability of constant changes and innovation are one of the mandatory conditions of its development in the information society.

Below are the tendencies and approaches to the education quality assessment that correlate with European approaches and the clauses of the Bologna declaration:

1) A changed perception of what the quality of education is. The correspondence between demands of the interested parties (the satisfaction of needs of students and their parents, employers, society and so on) has acquired an important role in the quality assessment;
2) A combination of internal and external assessment of education quality (implementation of self-assessment and assessment by qualified independent experts; selection of sample groups that describe various levels of educational achievements; on-going education quality assessment and monitoring at all levels for the analysis, implementation and managerial decision making).

A variety of accreditations: of a high education institution as a whole, a specialized accreditation of certain study programs, an international accreditation, and a social accreditation.

In Russia a social and professional accreditation began to develop simultaneously with the state structures of accreditation. The main goal of professional accreditation is to assess the quality of the preparation of specialists from the perspective of the academic community, to prepare ratings of education programs that help students and their parents choose an institution of higher education and employers in their search for qualified staff.

At the present time there are several associations that provide social and professional accreditation services. The most famous one of them are the National centre of social and professional accreditation (NCSPA), the Association of engineering education in Russia (AEER), the Agency on social control of the quality of education and of carrier development (ASCQECD) [1].

NCSPA which is a full member of a number of the leading international accreditation networks for assurance of education quality (INQAAHE, **APQN, CEE Network)** [2] has launched «The best education programs of innovative Russia» project. The aim of the project is to define study programs of higher professional education which prepare the best graduating students in accordance with the opinion of the experts in the area of education (managers and professors of Russian institutions of higher education, employers, chiefs of recruitment agencies, educational and methodological associations of higher education institutions, experts in education quality). Selection of the best

programs is made among a great number of single-profile programs like programs of pedagogical education, economy education, polytechnic education and so on, and also among all educational programs of higher education institutions of certain Russian regions. The project is aimed to help university entrants and their parents in their choice of a program and of an institution of higher education.

In accordance with the agreement between the Federal service of surveillance of education and science (FSSES) and the Association of engineering education in Russia, the Association of engineering education in Russia (AEER) is working on the development of the national system of social and professional accreditation of educational programs in engineering and technologies. Cooperation with the leading foreign and international organizations the Association is improving this system and is going finally to join the Washington agreement on mutual recognition of national accreditation systems of engineering programs and to integrate into the European system for assurance of quality of engineering education [3].

A list of programs accredited by AEER is published by the Russian and foreign mass media, submitted to the Ministry of education and science of Russian Federation and FSSES and is distributed among organizations that are members of the Washington agreement, the European Network for Accreditation of Engineering Education (ENAEE), and the European Federation of National Engineering Associations (FEANI).

ASCQECD is an independent professional agency in consulting, expert examination, accreditation and certification of educational institutions. ASCQECD has an associated status in the European Association for Quality Assurance in Higher Education (ENQA). At the same time ASCQECD is a full member of leading international accreditation networks for quality assurance in education:

- European Foundation for Quality in E-Learning (EFQUEL);
- The International Network for Quality Assurance Agencies in Higher Education (INQAAHE);
- The Asia-Pacific Quality Network (APQN);
- Eurasian network for quality assurance in the education (ECOKO);
- Central and Eastern European Network for Quality Assurance Agencies (CEE Network).

Having entered the Bologna process leading Russian institutions of higher education began to adhere to the standards and instructions of ENQA in their operations. Education institutions elaborate the policy and procedures for quality assurance, put into operation the mechanisms for the assessment of students, professors, and study programs with regard to their correspondence to the quality demands, regularly publish objective information about existing programs and certificates.

The following models and criteria of education quality have also become popular in the development of education quality in Russia:

The most popular and actively applied in Russia is the EFQM model. It the basis of the Prize of Russian Federation Government in quality and the competition model “Internal systems of an institution of higher education for quality assurance in specialists preparation”. Institutions of higher education use the model of business perfection of the European Foundation of Quality Management

(EFQM) and its fundamental principles, like customer orientation and result orientation, leadership and goal constancy, management decision making based on processes and facts, staff development and involvement, constant study, innovations, and improvement, partnership development, and corporate social responsibility.

As education quality is directly influenced by the quality of educational processes, some higher education institutions in Russia regularly undergo the ISO 9001 certification. MESI is the first institution of higher education in Russia that was certified in accordance with the international standard.

Typical quality model for education institutions was elaborated to help institutions [4]. The basis of the typical model is "The standards and directions for quality assurance of higher education in the European region" elaborated by the European association for quality assurance (ENQA) in higher education, ISO 9000 standards, the Competition model of the Federal service of surveillance in education and science (FSSES) and of Russian education "The systems of quality assurance in the specialists preparation", the Model for self-evaluation and self-improvement of the institution activity in the sphere of quality management that is harmonized with the model of the European Foundation for Quality Management (EFQM). The given principles have a large degree of correspondence. They mutually supplement one another and differ only in the fullness and depth of the coverage of all working processes of education institutions and also in the degree of correspondence between the quality system and the common management system.

The priority national project "Education" launched in 2005 should foster the modernization of the Russian education and will help to achieve the modern quality of education that is appropriate for the changing demands of the society and its social and economic conditions.
In Russia e-learning is becoming more popular. At the moment the need for quality of e-learning assessment and development of standards is quite urgent as it is impossible to apply the same requirement both to traditional and electronic education. For example, parameters about the specific aspects of electronic education are omitted in the traditional requirement of higher education institutions:

- criteria of open access to the education resources;
- new forms of interactions (of students, professors and teaching and other staff);
- new forms of development of study materials and its delivery;
- flexibility, individualization of study and other pedagogical aspects of electronic study that improve quality.

Experts who evaluate the quality of e-learning acknowledge significant objectivity of this evaluation (in comparison with the traditional one) as they can have an instant access to all study materials, check availability of study programs by themselves and see the interaction history among teaching staff and students in the saved archives.
In order to support stable development of e-learning many countries have elaborated on and develop criteria to assess quality of e-learning. At the present time there is no normative legal base to support and develop the electronic education. Moreover, some resolutions of Russian Federation

Government on licensing and accreditation have clauses that impede its development as a new form of education.

One of the Russian institutions of higher education that are actively involved in the processes of the quality development of e-learning is the Moscow State University of Economics, Statistics and Informatics (MESI). MESI is a university of a new type, one of the leading institutions of higher education in Russia with the richest experience and traditions of preparation of highly qualified specialists. In last 75 years the university has won leading positions at the education market in the quality of the assignable education and availability of technological equipment. A large structure of branches and partner organizations of MESI and its active cooperation with different educational structures make it possible to call it a unique education centre that provides education at the world level quality. MESI is a diplomat of the Prize of the government in quality. The main criteria of this model of quality are introduced in this institution of higher education. MESI is the only Russian university which is a member of the European Association of Distance Teaching Universities (EADTU). The system of quality assessment in e-learning **based on the criteria of E-xcellence** is adopted at the university.

MESI initiated the creation of the Accreditation agency for e-learning quality assessment (AELQA) that was founded in 2007 in order to foster e-learning improvement and development. The Agency provides services in accreditation of education institutions and the certification of education programs, tutors and specialists that use the technologies of e-learning. The agency also renders information, consulting, and education services in the following areas:

- Creation and certification of management systems of e-learning quality in educational, scientific and other institutions and organizations;
- Accreditation of educational institutions and certification of educational programs that use e-learning technologies;
- Certification of tutors of education institutions and specialists that use e-learning technologies.

One of the directions in the development of the Accreditation agency for e-learning quality evaluation is the usage and the promotion of **E-xcellence** at the national and institutional level including conferences, teaching, and competitions.

The application of European approaches and criteria for quality assessment is becoming more common in Russia since our country has joined the Bologna declaration. In general Russia willingly receives western experience that is aimed at higher education development. At the same time it saves its previous system that is focused on formal frames and control.

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Tikhomirova, N. & Komleva, N.: Development of business models of open education based on new intellect technologies

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Abstract

A steady rise in demand for online education has resulted in accumulation of a vast amount of e-learning materials available via the Internet. However, the present organization of online education is not always cost-effective. The key barriers affecting cost-effectiveness of online education are: high start-up and unit costs of educating a new specialist due to the transfer of formal education teaching methods to online settings. As a result, in some cases, the process of teaching a student is becoming more time-consuming.

Provision of cost-effective, quality online education can be achieved through the development of both intellect technologies supporting educational process and adaptive information technologies. They comprise object-oriented development of open educational resources (OER); integration in the educational process of courses based on the principles of self-education and adaptability; changing the role of a teacher in distance learning, raising his/her capacity and reducing the cost of educating a new specialist.

Creation of high quality e-courses requires ongoing updating of learning content with the use of OER. Lower cost of processing new data will give a possibility to get quality content as soon as it is published in the Internet. The possible tool for fast and effective import of new knowledge to the existing repositories is a community of practice located in the Internet or Intranet and created for accumulating, assessing, and filtering information obtained from the Worldwide Web or directly from a community member.

Introduction

Globalization of education, growing competition among higher education institutions both internationally and nationally gives rise to new opportunities for learning.

The continuous development of information and communication technologies (ICT) is one of the drivers of the knowledge economy. Effective use of knowledge is seen more and more as the key to economic success for both individuals and universities.

Information resources (knowledge and data bases, e-learning courses, e-libraries, etc.) combined with established teaching practices form educational environment available for the general public.

E-learning is becoming part of the mainstream of educational programs. The emergence of open educational resources is one of the most important trends in the development of e-learning. Open educational resources (OER) offer the prospect of a radically new approach to the sharing of knowledge; OER expands access to learning for everyone, widens participation in higher education and promotes lifelong learning.
OER includes learning content, software tools to develop, use and distribute content and implementation resources. It provides all facilities for effective educational process based on collaboration and interaction. More intensive use of OER enables innovation in knowledge distribution and brings economic benefits to individual learners and educational institutions.
OER can make an important contribution to a diversified supply of learning resources. Thus, the main challenge universities face at the moment is creation of relevant and high-quality resources and provision of quick access to them. Effective education becomes possible when there is teaching methodology which is focused on organization of students' independent research work and further implementation of the acquired knowledge for solution of particular problems. That's why it is vitally important to be aware of new trends in IT development and to introduce innovative and interactive educational experiences.

In this paper, we will examine the role of new intellect technologies which support the educational process, cover the costs of developing educational resources and maintain the required quality of online education.

The practice of using OER-based strategies and business models for lifelong learning in MESI

Growing competition among higher education institutions and the need to either find sources of savings or new revenue models might explain some of the institutional interest in OER. Institutions might even in some cases see OER projects as a way to sustain the institution itself, by earning revenue for the institution as well as the project, by cutting the institution's costs or by increasing enrolments and thereby income.
Our university has a wide net of affiliated institutions. Virtual Campus as an e-learning environment provides access to learning materials in over 600 subjects. Besides the e-courses tutors recommend to use open content; this reduces cost of education for students (open content is used as a substitute for commercial textbooks). So we can say that, in a way, the university uses *the replacement model* (open content replaces another model and can benefit from the cost savings resulting from the replacement). But the key revenue models which are used together are, without doubt, *the conversion model* (by which you give something away for free and then convert the consumer to a paying customer) and *the segmentation model* (in which the provider provides resources for free but also provides "value-added" services to user segments and charges them for services such as sales of paper copies, training and user support, ask-an expert services, etc.).
Available e-courses are reposited in the Virtual Campus. Access to these courses is free at any time and in any place. Learning can take both on-line and off-line forms: for the purpose of traffic reduction learning materials can be downloaded. The parent university gets from the affiliated institutions a charge for using the content (the situation, which is typical of *the replacement and*

conversion models). Provision of high-quality educational resources is of utmost importance because no customer will pay for a low-quality product. So, the primary aim of the institutional policy is to find incentives which will make faculty members create high-quality e-courses competitive both on national and international levels.

Affiliated students are educated in conformity with the curriculum and learning materials of the parent university, they are granted MESI degrees, and the affiliated institutions, in their turn, pay for the use of course materials. But, on the other hand, they are not inclined to use low-quality learning materials in the educational process. That is why the parent university will always strive to upgrade the quality of the offered educational services.

There are some motivations for participating in the OER movement. These are technical, economic, social, or legal drivers.

The technical and economic drivers include improved, cost-effective and user-friendly infrastructure:

-increased broadband availability (network);

-increased hard drive capacity and processing speeds (hardware);

-simpler software tools (software).

Legal drivers include the use of new legal means to create, distribute and reuse the open content (through licensing schemes).

Social drivers include the increasing willingness to provide educational resources for open sharing.

The gains to be achieved by open sharing are:

-for those who are involved in producing OER, giving intellectual property away in a competitive world might actually be a way of increasing publicity and reputation. It is not worth the effort to keep the resource closed because it can be developed and provided for open access by someone else. The OER movement is developing, and universities should join sooner rather than later;

-high quality and lower cost of educational resources can be achieved through their dissemination in the web and the use of editing tools which new technologies (Web 2.0) make available;

-in order to stay competitive universities have to look for new ways of bringing down costs for students.

Availability of a large number of OER induces educators to create and use open content because their students are able to compare and assess the provided learning material.

The rising number of students educated with the help of OER will promote growing acknowledgement of competences acquired beyond the limits of formal education.

The role of innovative intellect technologies in cost-effective and high quality education development

The most important challenges for higher education institutions are to cover the costs of developing educational resources and maintain the required quality of online education. In our opinion, this goal can be achieved through developing new intellect technologies which support the educational process. It is necessary to develop innovative educational technologies which apply tools for

managing learning materials and educational process. These tools must provide a possibility to adapt learning materials taking into consideration competences and goals of learners and ensure learning process management by constructing optimal sequences of learning objects for every learner.
Huge amounts of resources which can be found on millions of websites, open educational resources, scientific and pedagogical articles, materials of conferences and forums can be used as sources for producing learning courses. But it is impossible to ensure fast and correct handling of vast volumes of information. There appears a need to automate the process of checking suitability of OER for educational courses. It will allow reducing cost of processing new data and give a possibility to get high-quality content as soon as it is published in the Internet. The possible tool for fast and effective import of new knowledge to the existing repositories is a community of practice located in the Internet or Intranet and created for accumulating, assessing and filtering information obtained from the Worldwide Web or directly from a community member.
The web portal of a community of practice is an effective tool for creating quality up-to-date learning content which can be used for constructing new educational courses and updating the existing ones. At present, faculty and IT experts of MESI are developing a portal that meets the above requirements for students majoring in Information and Communication Technologies (ICT).
Community of practice is an environment where the world's best practices of e-learning are generalized, analyzed and made available for teachers who create new courses and update the existing ones. This technology implies teamwork by enthusiastic and interested people, communicating in discussion groups, with each participant having some special knowledge.
Open educational practices involve learners in active, constructive engagement with content, tools and services in the learning process, and promote learners' self-management, creativity and teamwork.

Distance learning must awaken learner's interest in the material presented. E-learning courses should contain various presentations of educational resources, reduce dependence on the teacher and provide the possibility of learning at any time and in any place where there is access to the Internet.
The emergence of Web2.0 tools provided the Internet users with new facilities: wikis, blogs, social networks, virtual reality and others. All together they may be called multiuser virtual environment. This environment blurs barriers between users and educational content developers. Its main advantage for a learner is the possibility to work in a team, to use the learning environment, to get professional support. A learner is both a user and a content developer; he/she takes an active part in discussing and problem solving.
That is why the technology of developing an e-course by an individual teacher is being replaced by the idea of a community of practice – technology which brings together the efforts of educational and subject experts and professionals in software, support services, hardware, database management, training support and development.

Figure 1: Prospects for further development of OER technologies

The use of this technology leads to essential economic benefits: a university graduate will be equipped with a wider range of competences and his/her prospective employer/company will not have to provide a newly-employed specialist with additional training because, being a community member interested in having highly-skilled specialists, the employer/company was involved in educating this particular student.

There are also economic benefits in the educational courses presented on the web portal. They contain such tools as: various ways of presenting learning material, testing based on considering the competence level of a learner, constructing optimal optional opportunities and individual educational trajectories for every learner. These tools ensure considerable savings of funds due to the reduction of teachers' participation in educating a large number of learners because courses of this kind are "self-educating". They can be offered for both universities and corporate training. The core principle of developing such courses is division of learning material into separate units – learning objects. A learning object can be reused and is an independent part (component) of a learning material. Reusable learning objects have the following key features: availability, accessibility, modularity, interactivity and reusability. As a result, the transition from clumsy nonflexible courses to reusable learning objects available for inclusion in the courses takes place. At the same time, there appears a possibility of aggregating small components into larger ones, inserting objects into logic sequences which, in their turn, become aggregate objects themselves. Transition from one learning object to another one in the course occurs after assessing a learner's knowledge competence in the previous learning material.

The concept of learning objects helps to customize learning material to the knowledge base and preferences of learners. An adaptability algorithm may require repeated study of the learning objects of the course (the very same learning objects can be parts of other educational courses as

well) and, in this case, a learning object may be represented more extensively, including references, illustrative examples and detailed charts.
Interactive adaptable courses have the following advantages:

-realization of learners' optional opportunities;

-the possibility of curriculum navigation, taking into account the competence level of a learner.

Adaptive educational process coupled with the object-oriented concept of presenting learning materials for distance education provides high-quality learning and is less time-consuming than traditional educational process with learning quality control.
The use of object-oriented technology of producing learning materials in some cases enables to enhance the capacity of professionals and leads to reduction in costs. Costs of developing a learning object decrease as the number of learning objects in a repository increases; and profitability grows as the number of reusable objects grows.

Conclusion

Summing up, the required quality of educating a new specialist and reduction in costs for online educational process can be achieved owing to the development of both intellect technologies supporting educational process and adaptive information technologies. They involve: object-oriented concept of developing OER; integration in the educational process of courses based on the principles of self-education and adaptability; changing the role of a teacher in distance learning, raising his/her capacity and reducing the cost of educating a new specialist.

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Tretyakova, Irina; MESI's ModeL of Blending Education in Tver Region: Results and Perspectives

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Abstract

Development and introduction of information technologies into the process of education is seen among the priorities in the activity of MESI. One of the most successful approaches to training top-professional, competitive and urgently needed specialists is to encourage them to build up their own understanding on the basis of modern pedagogical and information technologies. The model of blending education launched in MESI (Tver Branch) combines innovative technological discoveries with traditional training. Being a student of MESI is not only an advantage to acquire professional skills and deep knowledge but also a possibility to develop your competence in the sphere of modern management and IT, which in its turn contributes to the improvement of management in the firms and companies and helps to develop a competitive regional economy. Electronic environment gives students and professors a possibility and means to take an active part both in the social events and creative research projects.

Priorities of social and economic development of the Russian Federation

The main goals of social and economic development of Russia are focused at

- Realizing national projects in the spheres of education, health care, agriculture and home construction. Moscow State University of Economics, Statistics and Informatics (MESI) and its Tver Branch take active part in implementation of the national project in education. The essential part of the project is developing e-learning technologies, which is an important and effective tool allowing easy and quick access to education for a vast number of people living even in the very remote places in Russia. Bearing in mind that education is the basis for professional and career growth, the higher the level of education of people is the better opportunities to increase their well-being these people have.
- Creating an innovative system. The higher educational institution is part and parcel of the innovative system thus generating and offering new knowledge and forming a reliable basis for economic development and national safety. A higher educational institution is a transporter of knowledge if only it is competent in new methods of teaching, new educational technologies, possesses modern technical means of learning.

- Developing competitive clusters. Educational services should become one of competitive clusters providing export of knowledge and hence attracting investments into the country which will be used for scientific research and development.
- Developing human resources. During the era of reforms and economic transformation lots of Russian enterprises faced with the lack of highly qualified workers able to respond quickly to challenges of the modern world. Economy in the state of reforms urges constant renovation of knowledge. As a result a higher educational institution should satisfy growing needs in modern knowledge.
- Improving the quality of state and municipal management. The higher the quality of management is the better the achievements in all spheres of life are. A higher educational institution should help to create the most effective and convenient model of educating managers of various levels.

Russian higher educational institutions are to meet the requirements of innovative economy providing it with professionals who are flexible enough to adapt themselves to the challenges of modern production and development. Rapidly changing circumstances of life, stiff competition in activities, increasing flows of information – these are nowadays realities which stimulate a person's lifelong learning and dictate higher educational institutions to create a modern and effective model of lifelong learning.

Moscow State University of Economics, Statistics and Informatics (MESI)

Moscow State University of Economics, Statistics and Informatics (MESI) was founded in 1932. 150 thousand students study at MESI now. MESI is a university of a new type that is research, innovative and electronic university. MESI occupies the 5-th place in the review of 100 best traditional economic universities in the Russian Federation, the review was made by the Federal Agency on Education. MESI was the first among Russian universities to be certified for the international requirements of ISO 9001:2001. MESI is the only Russian university which is a member of EADTU.

MESI includes 35 branches in various parts of Russia offering modern knowledge through modern technologies to people living in remote places, in small towns and villages.

Fig. 1. This map shows the geography of MESI's activity in the Russian Federation.

Besides the Russian Federation MESI has founded its branches in Armenia, Byelorussia and Kazakhstan.

E-Learning and Distance Technologies in MESI

Moscow State University of Economics, Statistics and Informatics (MESI) is one of the leading universities in the Russian Federation in the field of modern technologies of learning. More than 20 years ago MESI started education of students through distance technologies. There were published a great many textbooks and manuals for distance students. MESI did so much to convince the municipal authorities in various parts of Russia, students and their parents that the distance technologies make the education more accessible and the education that is got through distance technologies may be no less qualitative if the university arranges distance education with due responsibility and professionalism.

More than 10 years already MESI has been dealing with technologies of e-learning. E-learning is an efficient instrument not only of learning but also of developing human resources. E-learning technology does not only improve the quality of education but also makes it more available and accessible from any place at any time, which are convenient for a student. E-learning is realized through the Internet or Intranet and is necessarily provided with the system of education management in various forms of technical and tutorial support. MESI makes many efforts to acquire and develop technical means for e-learning. Much has been already done for creation and compiling content of e-courses. MESI considers its final goal the foundation of a modern electronic university.

E-learning technologies have been introduced in MESI for the students of all forms and levels of education. Primarily aimed at teaching students being at a distance from the university e-learning technologies have proved to be efficient for day time students as they help to extend almost endlessly the time and differentiate the forms of interaction between a student and professors of the university. E-learning is realized in MESI through the educational e-platforms. The first platform introduced was the Prometheus System of Distance Learning which provides not so numerous but convenient set of tools:

- A library, containing e-textbooks;
- File Exchange for communicating by sending files with individual tasks and projects;
- Forum for discussing and consulting the students;
- Electronic tests for self control and final control of acquired knowledge and skills

Fig.2. The interface of the Prometheus System of Distance Learning is friendly.

The introduction of the educational platform led to reconsideration of the whole ideology of learning and teaching. Not only students of MESI should study how to work with the platform. For that purpose there was carried out a special course named «Student in E-Learning Environment» which is taught to all students of MESI during their first year at the university. But also professors of MESI are constantly learning in order to acquire new knowledge and skills which are necessary to cope with the challenges of contemporary education.

In 2008 a new platform was introduced – Virtual Campus. As compared with the first platform the Virtual Campus provides a student and a tutor with much more functionality. One of the essential

features to be mentioned is the possibility to arrange tutors' training on a regular basis as any user of the system can act as both a tutor and a student.

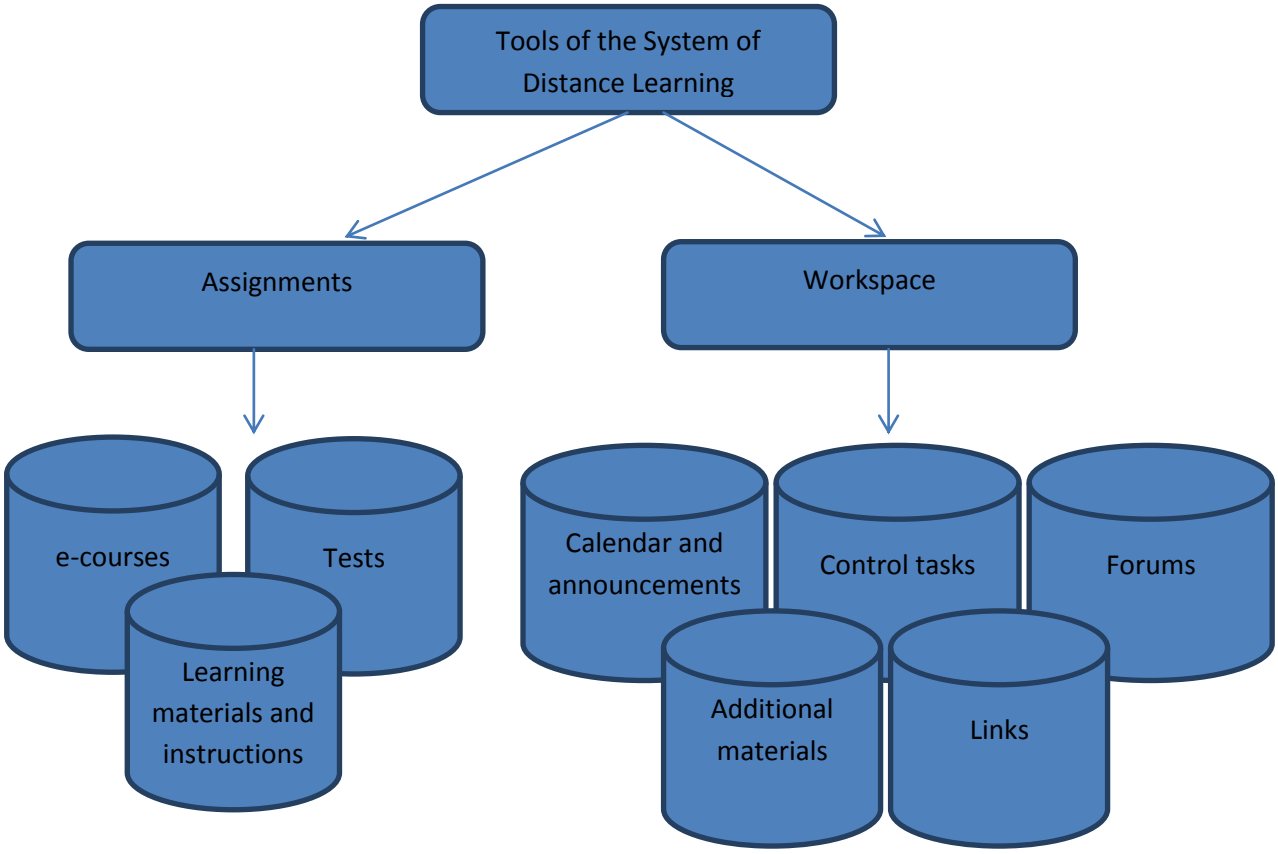

Fig. 3. This scheme shows the variety of learning tools available in the Virtual Campus System of Distance Learning.

The evolution of MESI is the progressive development from a higher educational institution teaching narrow specialists to a leading modern university offering students qualitative education through advanced learning technologies, successfully combining traditional educational strategies with technically sophisticated methods of teaching and learning.

MESI's innovations

Development and introduction of information technologies into the process of education is seen among the priorities in the activity of MESI. One of the most successful approaches to training top-professional, competitive and urgently needed specialists is to encourage them to build up their own understanding on the basis of modern pedagogical and information technologies. The model of blending education launched in MESI combines innovative technological discoveries with traditional training.

Being a student of MESI is not only an advantage to acquire professional skills and deep knowledge but also a possibility to develop your competence in the sphere of modern management and IT, which in its turn contributes to the improvement of management in the firms and companies and helps to develop a competitive economy.

There is a number of principles which are the foundations of MESI's innovative activity. They are as follows:

- be student oriented;
- offer a lifelong model of education;
- aim at practical use of knowledge;
- be open;
- be always technically advanced.

These principles find their reflection in MESI's slogan: «Be always one step ahead! ».

MESI's integrated educational and informational environment (IEIE)

Electronic environment gives students and professors a possibility and means to take an active part both in the social events and creative research projects. MESI and its numerous branches form a complicated structure which demands an innovative approach not only in managerial decisions but also to controlling the quality of educational services. Actually, it does not matter where the student of MESI lives and whether he/she is a student of the main university or one of its regional branches, the standards for educational should and really are the same. To achieve standardization of education in the structure of MESI as a whole there was created an integrated educational and informational environment. This environment is possible only due to the use of information technologies, technologies of distance and e-learning which are merged with the traditional forms and methods of education.

The main purpose of the integrated educational and informational environment is to collect all the available informational resources and make them available in the authorized mode oriented to various groups of users – to professors, students of different forms of education at any time and in any place convenient for the users. All activity of MESI is realized through the integrated educational and informational environment, the functionality of which is used for both education and management of education.

A set of resources which are necessary for operating this integrated environment include the following constituent parts:

- exchange of information between the headquarters and branches of MESI in various parts of the Russian Federation (realized through Microsoft Exchange 2007, Microsoft SharePoint 2007);
- integrated environment for running the educational process (Electronic Dean's Office);
- integrated data base accumulating information about professors, administrative and technical staff, students, applicants, etc.;

- integrated environment for running finance and accounting (based on the software developed by the Russian company 1C);
- turnover of documents issued by the headquarters and branches of MESI (DocsVision).

The integrated educational and informational environment allows reducing the expenditures for software, administration and technical support. Besides, due to centralization of management and use of common politics of access to the data, the safety of networks increases while the number of failures of the system decreases.

The integrated educational and informational environment is organizationally supported by the so-called distributive departments. One of the priorities of MESI's regional branches is participating in the activity of distributive departments. A distributive department of this or that science or discipline unites all professors, specialists in this science or discipline regardless of where they work either in the headquarters of MESI or in its regional branches. The department is distributive in the sense that its whole staff is distributed among the branches and every staff member due to sophisticated means of communication and accumulation of information is able to take part in the educational process irrespective of the place of its realization. A distributive department controls all levels and forms of education, estimates teaching and learning technologies, examines methods of teaching and coordinates research and development. The main directions in the activity of a distributive department are as follows:

- to certify new members of the staff, examining their expertise and skills necessary to work in accordance with the high standards of education accepted in MESI;
- to carry out methods of teaching appropriate to the modern development of education and society;
- to deliver on-line lectures and courses aimed at sharing experience between the members of the staff;
- to write textbooks and manuals for students;
- to publish collections of scientific papers;
- to arrange teachers' work and communication in the Information Centre of Disciplines.

Activity of a distributive department is realized in the forms of on-line sessions, e-forums, video conferences, master classes, seminars, etc., which may be initiated and supervised by any member of the staff. Primary attention is paid to the introduction of e-learning technologies.

The Information Centre of Disciplines serves as a helpful instrument facilitating and organizing the activity of a distributive department. Actually it is a technically complicated information resource accumulating results of research, development and practical work of professors and tutors of MESI. The Information Centre of Disciplines aims at the following:

- integration of educational, scientific and innovative processes, active participation of the staff in scientific research and attraction of students to take part in research and development;
- application of research results in education, training professionals of the highest qualification, creation of new specializations, scientific schools and trends;
- provision of scientific and professional growth and development of the staff;

- development of material and technical basis of research;
- preparing scientific papers and publishing scientific journals.

The Information Centre of Disciplines is accessible for professors, administration staff, students and post-graduate students of all departments and institutions of MESI and all its branches. The Information Centre of Disciplines is integrated into the personal workspace of any staff member and allows to use a set of convenient tools: libraries of electronic documents, Wiki libraries, blogs, references and links to external resources, forums, questionnaires, lists, etc.

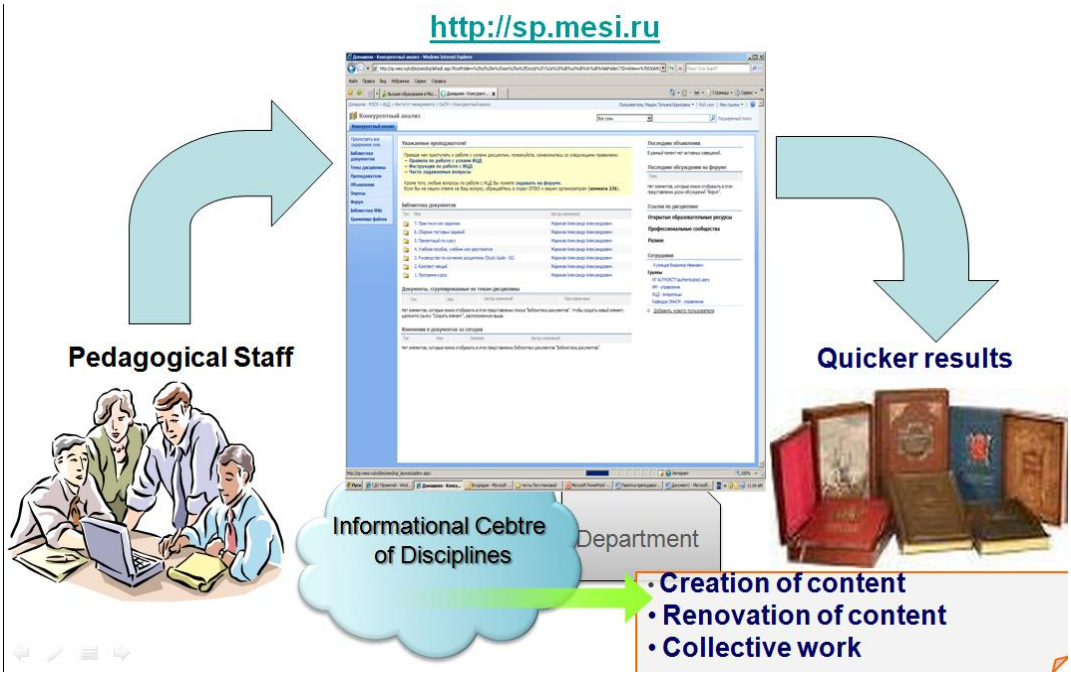

Fig. 4. This picture shows schematically how a distributive department works within the Information Centre of Disciplines.

The integrated educational and informational environment helps to maintain the standards of management and education and dictates a uniform set of requirements to the staff. To be a member of the staff of MESI a candidate should study and pass an exam in the following courses:

- «A Teacher in E-Learning Environment»;
- «MS Outlook User»;
- «MS PowerPoint User»;
- «The Internet User»

All courses were carried out in MESI and introduced into the academic curricular of teachers' studies. This approach to studies and training of the pedagogical staff allows building the blending model of education combining both traditional and advanced methods of teaching and learning.

Activity of Tver Branch of MESI

fig. 5. Tver Branch of MESI is situated in the centre of the ancient Russian city.

Tver Branch of MESI is all a regional educational institution first of. That means that the students applied for Tver Branch of MESI receive a possibility not only to increase their level of education and expertise but also to use the knowledge they acquire for the benefit of regional development, to apply the latest knowledge and skills to stimulate the growth of Tver Region economy. MESI and Tver Branch of MESI held a set of events under the title «A Week of Technologies and Innovations of Electronic University Consortium in Tver Region». Many regional organizations and enterprises took part in these events and were interested in training their staff through innovative technologies. MESI and its Tver Branch are ready to offer consulting services as well as to arrange training and retraining personnel of municipal bodies and enterprises of Tver Region. Tver Branch of MESI established The Club of Managers in Human Resources and top managers of Tver enterprises and organizations became its members.

In 2006 Tver Branch of MESI has become the member of Commercial-Industrial Chamber of the Russian Federation. Tver Branch of MESI has won a grant of the Education Department of Tver Region Administration competing with other educational institutions and has been nominated the best university in Tver Region for its innovative activity aimed at developing the system of regional education and economy. Three students of MESI were invited to become the members of The Youth Government of Tver Region, and one of them was elected the President of this youth organization, the function of which is to train future municipal and state officials.

Professors and teachers of Tver Branch of MESI are top professionals in their sciences having been working for years in traditional higher educational institutions of Tver. Tver branch of MESI was founded in 1997 and it has already celebrated its 13-th anniversary. Some members of pedagogical staff graduated from MESI and it is much easier for them to deal with the technologies to be introduced in teaching as they were used to them while studying at the university. That is why in the majority of cases our young colleagues are among those who initiate new methods and environments of learning and teaching. Nevertheless, all staff members are competent in both traditional and e-learning technologies of teaching due to the elaborate system of teachers' studies carried out in MESI. It should be mentioned that usually new technologies, which are to be used in

all branches of MESI, first are introduced and thoroughly tested in headquarters of MESI and then are offered for studying and introducing in the branches of MESI. That does not mean that the initiative could not appear in one of the branches. MESI is a distributive community where initiative, no matter whose this initiative is, is always welcome. Thus, Tver Branch of MESI in 2001 initiated the foundation of the laboratory of innovative educational technologies which should develop new computer programs and resources for e-learning. This initiative was highly estimated and approved by our colleagues in MESI. Since that time in MESI and all its branches first the Centers of Content Programming, now structural units under other names but with similar functions were created. These are the departments the main responsibilities of which are to develop new e-courses, to arrange and control e-learning on the educational platforms, to provide tutors and students with help and assistance while teaching or learning applying e-learning technologies.

The staff of Tver Branch takes an active part in the activity of distributive departments. Primary attention is paid to the practical application of theoretical knowledge. Distributive educational activity of Tver Branch of MESI is focused at the following directions:

1. Development and introduction of information technologies into education.
2. Development of distributive departments.
3. Introduction and development of the Integrated Educational and Informational Environment of MESI as well as interaction with the other branches.
4. Continuous development of learning materials and access to learning materials in the distributive environment.
5. Continuous professors' training.
6. Continuous students' training in accordance with the blending model of education, that is before – during – after classes.

Every academic year there are about 20-30 joint session of distributive departments. These are the most interesting sessions of distributive departments of MESI held together with the professors of Tver Branch.

- Together with the Institute of Management of MESI the Department of Anticrisis Management of Tver Branch arranged and conducted a master class under the title «The Russian Variant of Bankruptcy. Details of Yukos Corporation's Bankruptcy».
- The Department of World Economy of Tver Branch and the Department of World Economy and International Relations of MESI held an open seminar devoted to the problems of world economy, measurement and regulation of world integration and its consequences.
- The Departments of World Economy of MESI and Tver Branch arranged an on-line conference for students, where they discuss the causes and consequences of the world crisis.
- The Institute of Computer Technologies of MESI and the Department of Information Technologies of Tver Branch arrange joint sessions and master classes on a regular basis.

Research and practical use of research developments plays an important role in the activity of Tver Branch of MESI. Well arranged economy, oriented on getting maximum profit with minimum expenditures, demands long term planning, modeling various approaches to solution of the problems which the economy may face with because of a rapidly changing market situation. Under

these circumstances results of scientific research of the staff of Tver Branch acquires even larger importance for business people. Annual conferences held in Tver under supervision and guidance of MESI have proved to be a really successful platform to share the results achieved in the use of new technologies and innovations in training and re-training, to carry out new approaches and hence to respond quickly to the changes of the regional development. Thus, there was held a scientific practical conference «Through Innovations in Education to the Economic Growth of Regional Economy» to celebrate the 10-th anniversary of Tver Branch of MESI. To have better achievements in managing the enterprises, running the business, we need a new type of thinking. There should be managers able to respond adequately and effectively to the challenges of modern market economy. Training such manager is one of the most important tasks of a higher educational institution. The topics which were discussed during the conference were: formation of a new regional economy; foundation of technological parks, being the instrument of regional economic development; competence approach to training and retraining specialists for innovative economy. Annual expositions of Tver Branch of MESI during regional economic forums and conferences arranged by the Administration of Tver Region demonstrate achievements of MESI and its Tver Branch in the field of e-learning technologies. The results of joint research of scientists from MESI and Tver Branch are published in annual collections of papers.

Nowadays, lifelong model of education means access to education for people living in the very remote places, in small towns and villages, having no chance to give up their routine responsibilities and renovate their knowledge and skills. That is why Tver Branch of MESI makes every possible effort to promote programs of e-learning. E-learning technologies were introduced in teaching students of all forms and levels of training, from day-time students to professionals applying for additional courses.

Professors of Tver Branch did much to create, accumulate, replenish and renovate the resources of Information Centre of Disciplines. To be able to contribute to the Information Centre of Disciplines it is not enough to be a member of the staff a professor should become a member of a distributive department, to get an access to the informational resources for a certain discipline and then to start working with the integrated learning materials. These materials include:

- Textbooks and manuals in a certain discipline;
- Instructions how to write diploma and course papers;
- Timely renovation of topics of diploma and course papers;
- Student's books and collections of tests;
- Academic plans and programs;
- Courses for e-learning, which are different from traditional books and manuals in the sense that they are created with the help of electronic schedules which provide much visualization of the described notions and topics.

Training both professors and students of Tver Branch is continuous. To apply modern educational technologies effectively since 2004 every professor and member of the staff studies special courses, passes exams to get a certificate. Nowadays, the staff of Tver Branch is certified in the following courses:

- A Teacher in E-Learning Environment in the Prometheus System of Distance Learning and the Virtual Campus System of Distance Learning;
- An Organiser in E-Learning Environment in the Prometheus System of Distance Learning and the Virtual Campus System of Distance Learning;
- Effective Work of Teachers;
- MS Outlook User;
- MS Power Point User;
- Internet Explorer User;
- How to Work in the Information Centre of Disciplines.

It should be mentioned that teachers' training is arranged as a combination of theoretical studies and practical implementing of assignments, the aim of which is to apply the learning tool which is studied during the theoretical classes. Actually, these practical tasks are realization of acquired skills in professors' everyday teaching activity.

Students of Tver Branch as well as students of MESI take part in many events mentioned above together with the professors. Actually, MESI is a community of professors and students. Students' training is arranged in accordance with the blending model of education. There are many definitions of this model, one of them has been already mentioned, as this model presupposes learning before – during – after classes. It is also a combination of traditional and e-learning technologies and methods of learning and teaching. Students' studies are realized on two electronic educational platforms – the Prometheus and the Virtual Campus. The Prometheus System of Distance Learning was introduced in Tver Branch in 2004 and since 2009 the Virtual Campus is also applied.

This model of education allows also to reduce the hours a professor and students spend in the classroom but to increase the amount of independent and individual studies. Instead of routine lectures a professor may choose a lot of interactive forms of communication with the students, such as virtual seminars, master classes, trainings, simulations etc. They discuss the most complicated questions of the course not only in face-to-face communication but also in e-forums and chat sessions.

Our experience has proved that one of the most effective technologies of e-learning is video conference in the forms of video lectures and videos of events held by our Moscow colleagues or professors of the other branches of MESI. It is exciting to listen to the lecture of a professor who is a prominent specialist in his/her field but lives so far from your place. Students may ask questions to the video lecturer in e-forums and during chat-sessions. Since 2005 students defend their diploma papers and pass the final state exams on-line in the mode of videoconference. The examinees work simultaneously in Tver and Moscow and this allows controlling the quality of education and its correspondence to the standards of MESI.

Fig. 6. Students of Tver Branch of MESI pass final exams in the mode of video conference.

Tver Branch of Moscow State University of Economics, Statistics and Informatics (MESI) is one of the most rapidly developing higher educational institutions of Tver Region. To a larger extent it is due to the introduction of advanced technologies, contemporary knowledge and methods of teaching and learning which is among the priorities of MESI. This strategy helps to attract more students because it allows to offer more educational services and in the most convenient way.
Every year of Tver Branch's activity is one more step forward, a new stage, a higher level of development. Those students who graduate from Tver Branch of MESI get a possibility to choose a good job. Many of them work in the Administration of Tver Region, in the banks and the largest enterprises of Tver and Tver Region.

Trindade, Alice Donat: Pre- and Post Bologna ESP Roles in European Higher Education. A Case Study in Portugal

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Abstract

The present paper deals with English for Specific Purposes (ESP) practice in a Social Sciences College in Portugal, covering pre and post Bologna periods. This process implied a major overhaul in Portuguese Higher Education institutions in terms of organization, curriculum and consequent relevance of English language teaching within the context of these profound changes. Furthermore, the paper will try to assess how relevant it may be to keep the teaching of foreign languages, specially English, in public Universities curricula, and how this may mean an added value in employability figures. The article approaches ESP from the point of view of relevance of English language competence within a worldwide labor market v. the location of the acquisition of such a competence, with the necessary implication of the manner in which such process is funded – either privately, by students themselves, from secondary school completion on, or jointly with Higher Education Institutions, during pre-graduate studies –, pointing, as a conclusion towards its maintenance within Portuguese University curricula.

Introduction

The present paper deals with the experience in the teaching of English for Specific Purposes in a Portuguese Social Sciences College (*Instituto Superior de Ciências Sociais e Políticas*, ISCSP from now on), covering pre and post Bologna periods and the transformations this process originated in the goals, organization and offer of an English department. Changes due to the implementation of the new three cycle model implied a major overhaul in Portuguese Higher Education Institutions in terms of integration in degree programs, their curriculum and consequent relevance of ESP within the new context. These alterations have, as Inmaculada Fortanet-Gómez and Christina A. Räisänen (2006) refer, caused various feelings of uncertainty in the European community of higher education ESP professionals, even if the growing mobility of students and staff necessarily lead to additional added value in the use of the English language, no longer confined to language classes *per se*, but also to Content and Language Integrated Learning (CLIL) or even the offer of whole degrees,

undergraduate or master's degrees, in English in many European countries. This spread has additionally led to growing concerns about the eventual transformation of English into a 'killer language', as referred by Coleman (2006), menacing EU purposes of cherishing linguistic diversity. Otherwise, Higher Education Institutions in general have acquired, according to Keeling (2006) a role that goes beyond the traditional teaching oriented role, to a research, i.e., 'knowledge transfer' pursuit that should be one of the main targets of this century-old European institution, along with the "'up-skilling' of the workforce." (*ibidem*, 209)

In fact, following the transition chronology pointed out by Tony Dudley-Evans and Maggie Jo St. John (1998), from English for Science and Technology predominance to English for Business and Academic Writing, the pressing need for ESP skills presents itself now clearer and wider-ranging than ever, due to the new challenges posed by increasing mobility of a multi-faceted academic community within a geographical space that does not share a common language and comprises the 46 countries[130] up to the moment included in the Bologna Process. Unlike the political community that still uses national languages in forums such as the European Parliament, mobile European students and professors have to master national languages or, in case that does not happen, mainly resort to English as an instrument of communication, in fact the one that is mostly taught in European countries[131].

In the present case, and in order to situate the college under scrutiny in the general picture of Portuguese higher education a brief description of its history, specifically in matters of English language learning, will first be drawn, referring the evolution of the subject within the different degrees conferred along its history. Two particular issues will then be analyzed in depth: the reasons for a certain organizational inadequacy felt both by faculty and students before the onset of the Bologna Process and how the ensuing shift in curriculum design was used to try to remedy some of the existing shortcomings. The importance of the permanence of English in the curricula will also be approached, as the decisions made at this specific turning point might eventually have led to its exclusion as a compulsory or optional subject which, in fact, did not happen. On the other hand, the new model originated a major shift in terms of the formation of students' groups at ISCSP, both due to the introduction of a compulsory placement test, a decrease in the number of available language courses for most degrees, and the possibility of conclusion of those courses at different proficiency levels for students attending the same degree, unlike previously. The results of the afore-mentioned placement tests will be scrutinized, in terms of the level of language proficiency demonstrated by students which have been acquired prior to their admission to university. Also the functioning of school years 2006/07, 2007/08, and 2008/09 will be reviewed, trying to reach a first assessment of outcomes deriving from change in course design.

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[130] All EU Member States (Belgium includes Flemish and French Communities), Albania, Andorra, Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Georgia, Holy See, Iceland, Liechtenstein, Moldova, Montenegro, Norway, former Yugoslav Republic of Macedonia, Russia, Serbia, Switzerland, Turkey and Ukraine.

[131] First European Union Survey on Foreign Languages Skills. "In the first round of testing, planned to be carried out in 2009, the tests will measure three skills (*reading, listening and writing*) in the first and second most widely taught European languages of the EU: English, French, German, Spanish and Italian." Retrieved 27 October 2009, from **http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/496&format=HTML&aged=0&language=EN&guiLanguage=en**

The result of this process is not yet possible to assess in its whole dimension. Notwithstanding, certain aspects may already be observed and some conclusions drawn. In general terms, curricular changes led to lively internal and societal discussion which originated a reinforcement of the influence of society at large, both during the period of national debate that preceded the reformulation of degrees, and later in aspects such as the government of Universities. In order to present the situation described, official documents will be analyzed and referred, such as guidelines that set the framework for change, observable through comparison between previous and present curricula, leading to the loss or gain of importance of English as a curricular subject within this context. Articles appearing on the daily press will also be referred, as this was a moment when civil society clearly demonstrated an interest in university affairs often left for academics to handle on their own. Next, the paper will try to assess how relevant it may be to keep the teaching of foreign languages, especially English, in HEI curricula, and how this may mean an added value in employability figures.

Finally, some considerations will be made on future prospects for language teaching at the tertiary level, bearing in mind a certain trend towards outsourcing in this area, which may entail consequences such as additional financial burden to be borne by students.

1. Evolution of English courses in the context of a Social Sciences school

The history of ISCSP began in the early twentieth century when it was founded by royal decree published on 18 January 1906 with the following purpose being stated on the original text: "A Colonial School is to be established at the Lisbon Geographical Society, under its responsibility and the supervision of the Government, meant to train those who are to enter Civil Service in Overseas Possessions."[132] At the moment of institutional foundation. English was not contemplated in the curriculum but, in the first reorganization of the study plan in May 1919, the subject "Practical English" was included in the third year of the 'General Course'. The syllabus anticipated these guidelines: "If the proposed syllabus is carried through, the graduates of the Colonial School will have the necessary tools to speak, understand and write the English language, which, as we all know, are necessary requirements for the Portuguese colonialist."[133] A one-year course presented one of the hurdles to be overcome both by the English teacher and his adult audiences with a previous and diversified educational background: then, as now, the main difficulty of the professor in charge is the heterogeneity of the class in terms of proficiency levels.

Indeed, in the syllabus for the 1920-21 'Practical English' course, the teacher wrote:

The *sui generis* characteristics of this subject demand the use of a unique method. In fact, the bases on which classical methods are founded are hardly, if at all, to be encountered in this instance. Instead of a class of beginners or intermediate students, the instructor faces a class where different types of students may be found: those who have never learnt or heard a word of English and others

[132] *Annuário da Escola Colonial. 1919-1920*. Lisboa: Centro Tipográfico Colonial, 1920, p. 27.

[133] *Annuário da Escola Colonial. 1920-1921*. Lisboa: Tipografia do Comércio, 1922, p. 46.

who studied it and are fluent. Between those two extremes one may come across the most varied levels.[134]

As a consequence one may infer that the problem of mixed ability language classes at the higher education level goes hand in hand with another crucial fact that Hutchinson refers in his seminal work *English for specific purposes: a learning centred approach*: the one that needs and interests of learners are paramount (Hutchinson, 1987). In 1921, the curriculum was designed to serve a very specific function (a 'requirement for the Portuguese colonialist'), and not the dominant purpose to be found in the Humanities area, mainly concerned with literary studies. We might therefore dare to say that, from its foundation, the teaching of the English language at ISCSP was *avant la lettre* ESP, in a mix of two of Hutchinson's five developmental stages, i.e., register and target situation analyses. The syllabus for the 1921 course refers tasks such as "pertinent vocabulary acquisition", the reading of "examples of colloquial English obtained from modern texts" and "readings from newspapers and magazines, namely of articles on the colonies."[135] This syllabus involved some research into adequate language register and an awareness of target situations, eventually due to the experience the professor in charge obtained in his practice as instructor in the "War School", designation of the institution of Higher Education that between 1911 and 1919 catered for educational needs of Army officers, a class closely linked to the administration of early 20th century Portuguese colonies.

English continued to be taught as a compulsory subject at the different moments of the history of the Institute. With some changes in terms of weekly contact hours, which were reduced to three in the 1940s, the same model was kept until 1961 when ISCSP joined the Technical University of Lisbon, and English became a biannual subject. From 1980 on, when a deep change in the organization of the school took place, English remained a compulsory yearly subject in the first and second years of four-year degrees in the area of the Social Sciences, and so it continued, until the introduction of changes which would derive from the implementation of the Bologna process.

2. Organizational inadequacy due to mixed abilities

As referred above, the issue of mixed ability classes was one of the major difficulties felt by the different teachers and department heads involved in the teaching of English at ISCSP throughout the years. Although the majority of students attend University immediately after their secondary school years, they may not have shared the same curriculum. Their former acquisition of the English language can vary from a minimum of three years (eventually less, in some very specific cases), to twelve years, if they started it in the first year at school. In most cases, however, the average number of years of English language learning is seven, and the goal that should have been reached on leaving secondary school is supposed to correspond to either Level B1 or B2 of the Common European Reference Framework, depending on the number of years of language learning at

[134] *Ibidem*, p.45.

[135] *Ibidem*, p.46

secondary school.[136] The Portuguese Higher Education panorama in this field has been referred, for instance, by Mavor and Trayner (2001), who bring to the fore the disparity of proficiency levels at college entry level in Portugal. Until school-year 2005/06, all ISCSP undergraduate students had two compulsory yearly English courses, in years one and two of their degree. This resulted in the need for strategies to help students who could not keep up with the pace (including extra classes) and, on the other hand, also resulted in a diminished level of interest for those students whose competence was higher. As a somehow expected result of this situation, in-class communication situations were unevenly distributed among participants, as better students would tend to use most of the time assigned to debate.

With the introduction of the Bologna Process, degrees were reduced by 25% in duration, from four to three-year first cycles, leading to even greater need for optimization in the use of contact hours and students' workload which eventually led to the introduction of a compulsory placement test at the beginning of the first school year and corresponding assignment to a different number of English courses required by students to complete the Common European Reference Framework level deemed necessary for students of different degrees.

3. Changes in curriculum design

The major alterations in the case of Portuguese Higher Education Institutions have to do both with general traits in former and present curriculum design – from past year-long to current semester subjects –, and deeper shifts in role-players' comparative relevance, deriving from guidelines for the implementation of the Bologna process such as those contained in document *A Framework for Qualifications of the European Higher Education Area*.[137] All of them had to be translated into the necessary adaptations carried out within English programmes themselves, undertaken due to the reduction in the duration of courses and diversified curricula.

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[136] See documents issued by the Office of Educational Assessment (GAVE) of the Portuguese Ministry of Education available at: **http://www.gave.min-edu.pt/np3content/?newsId=218&fileName=IE_Ingl_s_850__09.pdf**, retrieved 9th October 2009. This document, containing guidelines for 2009 final secondary school exams stipulates for instance: "production of extensive [180-250 words] texts, such as piece of news, comment, editorial, review…), that put macrofunctions of discourse into practice (narration, description, argumentation) associated to communication intentions (reporting events, issuing opinion, explaining, counterposing, persuading…). […]within four topical areas: the English language in the world, Citizenship and Multiculturalism, democracy in the Global Era and Cultures" P.3

[137] Bologna Working Group on Qualifications Frameworks (2005). "A Framework for Qualifications of the European Higher Education Area", retrieved 12 October 2009, from **http://www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/050218_QF_EHEA.pdf**. Referred is for instance, "Traditionally within higher education, and largely irrespective of national agendas, programmes have been predominantly planned by the provider(s), with the coherence of the programme setting the context for any quality assurance, whether this is based on implicit/subjective or explicit/objective criteria. With the aspirations of the lifelong learning agendas being promoted at national levels throughout the EHEA, there is increasing emphasis on the role of the stakeholder (student and employer) in programme planning."(p.51) The issue of student interest was the key to the introduction of multiple syllabuses adapted to the reality of students' competence and not to an ideal level of competence that was not actually there.

As a consequence of national guidelines[138], Universities had goals to achieve and deadlines by which the former had to be completed, but this did not mean a total loss of autonomy in terms of choices made by different schools. However, and even if ministerial directions were not of an imposing nature, there was a trend towards 'benchmarking[139]' among institutions of a similar nature, leading to analogous decisions in terms of choice in subjects to be kept or excluded, length of first, second and third cycles, and timings for change. Besides, within the schools, and specifically in this one, there were multiple levels of internal debate and negotiation between Administration, Department and Degree Heads, and English Professors who strove to keep ESP in the curriculum for different reasons, namely its instrumental value for students and future graduates in academe and other professional situations. Economic concerns were also at the heart of the effort to secure a place in the curriculum for this specific subject, as the option to outsource would mean additional expense for students and their families, if further expertise in the English language had to be thus obtained.
In 2004, a group headed by the Rector of the Portuguese Catholic University issued a document [140] where the option for 180 credit/6 semester first cycles was deemed sufficient to give generic training to graduates in areas of the Social Sciences as Anthropology, Sociology or Social Policy, but not to prepare degree holders skillful enough to "perform situational diagnosis." (Cruz, 2004:8) This document followed guidelines earlier issued by the Portuguese Minister for Science and Technology which clearly pointed at three year/six semester first cycles, a decision that was later to be accepted, even if under protest,[141] by representatives of colleges offering academic areas which do not have professional associations of relevance. In fact, and regarding the latter case, the Architect and Medical Doctor Associations stood by their decision to accept no academic trajectory of lesser

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[138] Guidelines issued in 2004 suggested first cycles granted after obtaining 180 credits in six semesters as a general rule, except for some specific cases like Medicine. Second cycles should be obtained after 4 semesters and an additional 120 ECTS. Deadline for the final stages of implementation was scheduled for 2009/10. Ministério da Ciência Tecnologia e Ensino Superior. "Reforma do Sistema do Ensino Superior. Orientação para Harmonização de estruturas de Formação". Retrieved 2 November 2009 from

http://www.mctes.pt/archive/doc/Orientacao_para_Harmonizacao_de_Estruturas_de_Formacao_0.pdf

[139] Benchmarking had already been referred, e.g., by Teresa Barata Salgueiro in 2005, specifically about geography first cycles, but that can be easily extended to most other scientific areas. The author makes the connection between the need to establish comparisons between specific degrees in the best practice in the area, so as to make an attractive offer to prospective students. Teresa Barata Salgueiro, "A Geografia universitária em Época de Benchmarking". Retrieved 9 November 2009 from

http://www.ceg.ul.pt/finisterra/numeros/2005-79/79_11.pdf

[140] Cruz, Manuel Braga (2004). "Implementação do Processo de Bolonha a nível nacional. Grupos por Área de Conhecimento
Ciências Sociais". Retrieved 12 October 2009, from
http://www.cpihts.com/PDF/Bolonha%20C.Sociais%20%20&%20Servi%E7o%20Social.pdf

[141] See for instance Jesus, Avelino. "Um balanço realista do Processo de Bolonha", Jornal de Negócios, 16 June 2009. Retrieved 29 October 2009 from
http://www.jornaldenegocios.pt/index.php?template=SHOWNEWS_OPINION&id=373028

The author ventilates his view that even though Portugal was referred in the 2009 Louvain Conference as one of the countries applying the model more successfully, that does not entail better students' performance or higher academic standards of degreeholders.

duration than the pre-existing one (5 and 6 years, respectively), as academic pre-requisite for new members to join the associations. Both architects and doctors now obtain their educational qualification on completion of a second cycle (master's degree) obtained after 5 years at a school of Architecture or 6 years at Medical college. The same happens with engineers, psychologists, veterinarians and pharmacists among others, who did not consent upon a reduction in the number of years necessary to obtain the scholarly pre-requisites to enter professional associations, and agreed on requiring a Master's degree/second cycle in the new Bologna model.

As for students, their opinions have varied widely. On one hand, the online journal of Technical University engineering students, "Diferencial", no. 27[142], manifested hope that this might be an occasion to emulate the Anglo-Saxon preference for acquisition of competence, rather than the Portuguese tradition of a passive students' role, one of mere audience to lecturers, and/or subject centered classes. On the other hand, some law students at the University of Oporto manifested their disagreement with the whole process in the online journal[143] of Media students, namely in matters of inexistence of continuous assessment and dissatisfaction with the reduction in length of their degree. The same opinion was shared by students from the University of Minho, as revealed in article "Debate on Bologna Process attracts few students"[144].

In school year 2007/08, 90% of degrees had adopted the three cycle model. Besides, further measures were taken by the Ministry of Science and Higher Education to foster the enrolment of students who do not conform to the traditional full time, non-professional, young adult model[145]. Thus provisions were made to enable candidates to attend university on a part time basis, as, for instance, by allowing the possibility to take specific courses without being formally enrolled at University, one of the solutions found for life-long learning, within the framework of HEIs. In 2009, previous to the Louvain meeting of countries involved in the process, Portuguese government officials stated to the press that 98% of degrees had been adapted to the new models.[146] Finally, in

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[142] Jorge Parámos and José Manuel Delgado. "O Processo". Retrieved 12 October 2009, from **http://diferencial.ist.utl.pt/edicao/27/processo.htm**,.

[143] Carvalho, Elsa. "Processo de Bolonha: dez anos depois alunos continuam insatisfeitos". *Jornalismo Porto Net*. 23 September 2009. Retrieved 29 October 2009 from **http://jpn.icicom.up.pt/2009/06/19/processo_de_bolonha_dez_anos_depois_alunos_continuam_insatisfeitos.html**

[144] Oliveira, Sylvie. "Debate sobre o processo de Bolonha com fraca adesão estudantil". *ComUm*. 20 December 2007. Retrieved 29 October 2009 from **http://www.comumonline.com/index.php?option=com_content&task=view&id=603&Itemid=78**

One of the problems mentioned in these articles is the lack of interest demonstrated by students in the reorganization of curricula and therefore of students' lives, demonstrated in the small number of participants who attend debates on this pressing issue.

[145] Ministério da Ciência Tecnologia e Ensino Superior. "Aprofundar o Processo de Bolonha. Retrieved 12 October 2009, from **http://www.mctes.pt/archive/doc/BolonhaII_2008_04_30.pdf**.

[146] Alves, Catarina. "Quarenta e oito países [*sic*]discutem processo de Bolonha já concretizado em Portugal". *Público*, 28 April 2009. Retrieved 29 October 2009 from **http://www.publico.clix.pt/Educa%c3%a7%c3%a3o/quarenta-e-oito-paises-discutem-processo-de-bolonha-ja-concretizado-em-portugal_1377158**

the "Bologna Process Stocktaking Report 2009"[147], Portugal is rated as having successfully reached goals concerning degree system and recognition, and even quality assurance, although not to the same degree of success in this latter area.

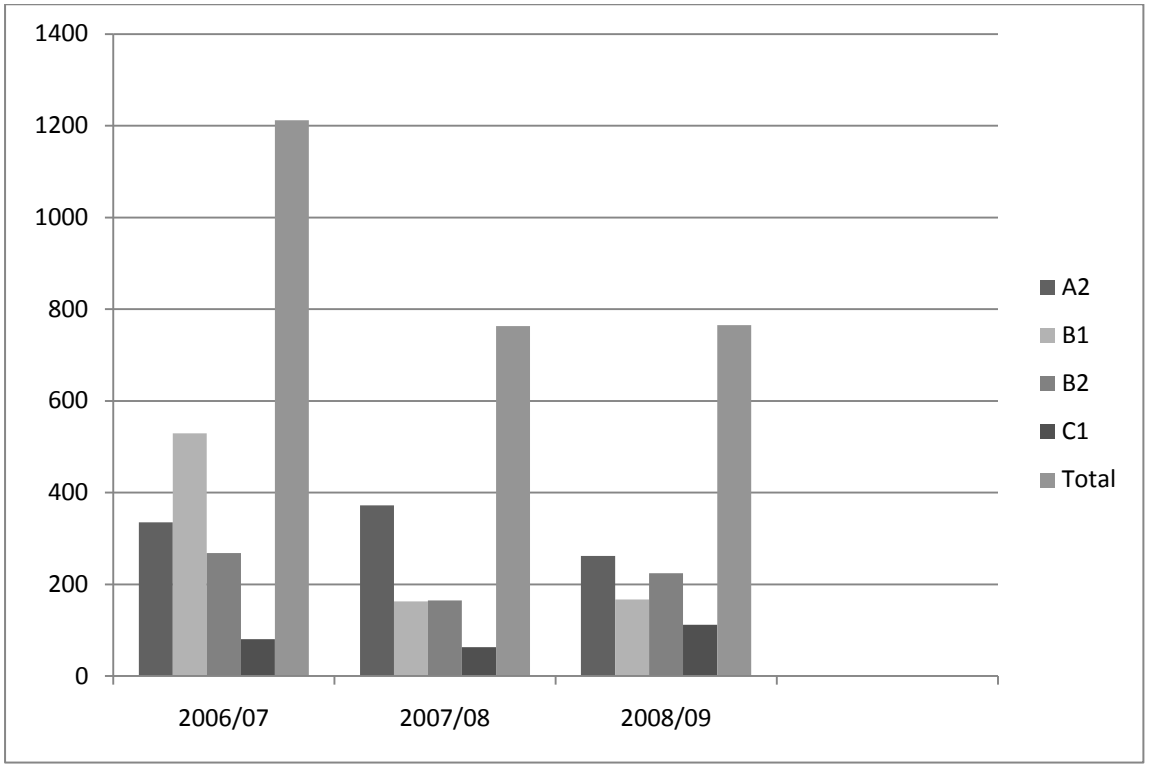
More recently, in school year 2009/10, the first group of students, who followed the curriculum conforming to the precepts of a Bologna first cycle, finished their degrees. One of the first results is the increase in enrolments in the second cycle: In school year 2008/09, ISCSP had 242 second cycle students, whereas in 2009/10 the number was 370, a majority of whom (over 50 %), Institute graduates**.**

4. Consequences of placement test and curriculum design shift

In view of the fact that, theoretically, all students have already learnt English to some extent, having however reached diverse proficiency levels, the school opted to offer English courses leading to the completion of A2, B1, B2 and C1 Levels of the Common European Reference Framework. Students are assigned to their respective level after a placement test, whose results may be appreciated by looking at the following table, displaying the scores obtained in the three years covered by this study:

[147] Andrejs Rauhvargers, Cynthia Deane & Wilfried Pauwels. "Bologna Process Stocktaking Report 2009". Retrieved 12 October 2009, from **http://www.mctes.pt/archive/doc/Stocktaking_report_2009_FINAL.pdf**,. "**Portugal** was a signatory to the Bologna Declaration. Key developments since 2007 include: legal reform regarding the framework for quality assurance of tertiary education, for the recognition of foreign tertiary degrees; HE Evaluation and Accreditation Agency; Diploma Supplement; simplification of procedures and flexibility in access to tertiary education; additional requirements for HEIs to demonstrate the methods and practices in curriculum development; use of ECTS and cooperation with society with a view to extending the recruitment base and increasing the number of students; fostering the internationalization of research universities and their specialization; promoting the binary system, with polytechnic education concentrating on professionally oriented and vocational training; a move has started towards universities as public foundations governed by private law, strengthening university autonomy under independent legal status; National Agency for Accreditation and Evaluation of HE has been established; introducing the Bologna three-cycle system is progressing and will be completed before the end of 2009; system of student loans with mutual guarantee underwritten by the State has been established, which improves access to tertiary education. Future challenges include: establishing policies considering long term approaches to changing environments; need to foster advanced human resources and knowledge-integrated communities; broadening the social basis of tertiary education." (Rauhvargers 2009: 115)

Table 1: Number of students placements per level and school year.



The number of students who took the placement test was much higher (1211) in 2006/07 than in subsequent years, as all students enrolled had to adapt their English study plan to new models in that year: one may observe that the majority of candidates (529) were placed in Level B1, whereas in the following two years, the level that was to receive more students was A2. In 2008/09, the difference between A2 and B1/B2 decreased when compared to the previous year. The placement test used was the same in the three years and it was a paper and pencil test aiming to assess students' proficiency in order to place them in different groups (Laurier, 1996).

Besides the display of placement results that show a lack of correspondence between the expectable exit level of secondary school and the actual level of knowledge displayed in the test, the introduction of a diagnostic test implied changes in the organization of students' curriculum, which means that they only have to follow the number of courses required to complete Level B2 or C1, depending on the degree they are taking. C1 has to be reached by Media Studies and International Relations undergraduates, whereas B2 is the requirement for all other attending degrees like sociology, anthropology or public administration. Nonetheless, all interested may proceed to C1 if they choose to, as they have slots for optional subjects that allow them to choose subjects from any scientific area, including languages.

5. Foreign Language Skills and their acquisition

There is hardly any need to point out the validity of the claim that the knowledge of the English language is a necessary prerequisite for enhanced employability for college graduates. At a time

when transferable skills[148] are an added value in a volatile labor market, the knowledge of foreign languages, especially English[149], plays a major role in a curriculum vitae. The European CV model, Europass, devotes a specific part to Language competence, using the Common European Reference Framework. In the 2008 edition of a Portuguese annual job fair ("Futurália"), the president of the Consulting Committee and former Portuguese Minister of Education, Professor Marçal Grilo wrote: "The transferable skills that companies most often seek are: international experience, **foreign languages**, entrepreneurialism, leadership, communication skills and innovation".[150]

The question of how important they are is not open to discussion: however, Higher Education Institutions may ponder the inclusion or exclusion of foreign language courses in their curricula for various reasons, namely purely economic ones. The question is whether the financial burden entailed in the improvement/acquisition of English language skills at an intermediate or proficiency level should be mainly borne by the students themselves or by HEIs. In times of scarcity of university funding, the obvious solution is to direct them to private schools and institutes. At the present state of affairs in Portugal, it is however doubtful that such might be an adequate solution. The unsatisfactory results of the initial placement test have proven that the goals aimed at in secondary education are not achieved by about 50% of our undergraduate population. In face of the situation, I must say that completion of intermediate level must take place within the standard academic curriculum; otherwise, our graduates will be unable to overcome language obstacles in their future, tendentially internationalized careers. In 2008, according to Eurostat[151], Portuguese GDP per capita in Purchasing Power Standards (PPS) was 76% of European average: although families are aware of the importance of investment in children's education, postponing the entrance in the labor market is often enough of a penalty for families, only to be made worse if additional spending on education is necessary.

In Portugal state universities' undergraduate curricula in the Social Sciences area tend to offer at least one language (in that case, English) or even more than one, as may observed in the table below:

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[148] "Transferable skills are defined by the project as 'skills developed in one situation which can be transferred to another situation'." Rhona Sherry, Philip Curry (2005). "Developing students' transferable skills in the language classroom". Transferable Skills Project: Dublin, p.12.

[149] "Modern languages in the sense of foreign language proficiency and related cultural insights represent both a degree subject and a transferable skill." Coleman, Jim (2005). "New Contexts for University Languages: the Bologna Process, employability and globalization", (**http://www.llas.ac.uk/resources/paper/2255**), retrieved 5 November 2009.

[150] FIL. *Newsletter*, October 2008, **http://newsletter.fil.pt/dez08/Futuralia.pdf**, retrieved 2 November 2009.

[151] See GDP per capita in PPS, **http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tsieb010**, retrieved 3 May 2010

Table 2: Languages offered in Social Sciences curricula at Portuguese universities, according to information provided on Universities' websites

niversity	**egrees**	**nguages offered in compulsory rriculum**
niversity of Minho	Media studies Sociology	None None
niversity of Porto	International Relations Sociology	English, French, German, Spanish. None
niversity of Aveiro	Public Administration	English and French
niversity of Coimbra	Journalism European Studies	None English and other
niversity of ás-os-Montes e Alto Douro	Media Studies Communication and New Media Social Work	English English .English
niversity of Évora	Sociology Information and Documentation Management International Relations	None English English Several
niversity of the Algarve	Communication and Languages Education sciences	Several Several
niversity of Madeira	Cultural Studies Communication Culture and rganizations English Studies and Business Relations	English, French English, French and German English and German
niversity of Azores	European Studies Social Work	English None
berta University	Libraries and Documentation Other Social Sciences Degrees	English None
niversity of Lisbon	European Studies	Foreign language choice (not ecified)

In most cases, the study of foreign languages takes place in the first, or in a few cases, first and second years of degrees, during two to four semesters. As referred in another section, benchmarking

may have played a role in this option for the inclusion of language teaching. University authorities are aware of different factors that have contributed to this decision: Portugal has an important tourism industry, where foreign idiom competence is of essence; this relevant economic sector partially helps to balance the financial burden deriving from a chronic dependence on imports still revealed by a steadily growing deficit in the Balance of Payments[152]. Simple observation of daily life events signals the need for good language skills among workers or prospective workers: it is not unusual to find job advertisements published in English in the Portuguese press. Graduate employability being a major concern of Universities all over the world and certainly in Portugal, any factor that may add to success in the area is particularly cherished by administrators.

6. Future Trends

The increasing mobility of students and skilled workforce in Europe has contributed to heightened awareness of students, university administrators and departments to the importance of specialized language teaching. English in particular has seen a rise in interest by all these actors, along with additional interest in other, until now less taught world languages, as for instance Mandarin Chinese (which has been regularly taught at ISCSP for about a dozen years).

In fact, although the Portuguese language ranks sixth in terms of number of native speakers, it is not worldwide used as a language of diplomacy, intra- or international communication or science, some of the reasons mentioned by Johnson (2001) as relevant to the need felt by millions of world citizens to learn a foreign language. The Portuguese interiorized the need for foreign language learning centuries ago, when they came into contact with various peoples due to our voyages of discovery in distant parts of the globe. Nowadays, our attention has been directed to world areas both close and distant, owing to steady flows of emigration to European and other countries. This trend has not subsided, with a more recent diversification of migrant groups' characteristics, now constituted of diversely skilled individuals. According to *Observatório da Emigração*[153], a fifth of Portuguese degree holders do not work in Portugal, either because they could not find employment in the country or better chances were given to them abroad. This opening of world labor markets encourages students to improve their language competence and, in the case of the English language, the need to sit for international exams required to study or work abroad, such as IELTS or G-Mat, is a strong motivator.

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[152] See Ministério da Economia e Inovação. "Portugal – Main Economic Indicators", **http://www.gee.min-economia.pt/default.aspx?cn=64476589AAAAAAAAAAAAAAAA**, retrieved 26 October 2009. This deficit has increased from 6.6% in 2003 to 9.4% in 2008.

[153] According to studies made by the World Bank and cited in the October 2005 article "20% of degree-holders leave Portugal", Portugal is, in Europe, the small to medium dimension country most affected by brain drain. Portugal ranks 21st in the general list of countries' graduate loss to emigration. Information made available by the Portuguese Observatory for Emigration at **http://www.observatorioemigracao.secomunidades.pt/np4/533.html**, retrieved 24 October 2009. The Portuguese Observatory for Emigration was created in 2008, as a joint organization, comprising the Portuguese Department for Portuguese Communities Abroad and Lisbon University Institute.

In the home labor market, the need for language skills is very much present. In academic circles, industry, trade or service areas, international cooperation and contacts require the knowledge of at least two foreign languages. A Portuguese program for young graduates seeking an internship abroad, *Inov Contacto*, requires competence in, at least, English and another language as pre-requisite for application.[154] In fact, this requirement meets expectations created by the goals stipulated in the 2002 Barcelona Council that recommended the learning of at least two European languages since early age. These objectives are translated into a program that can be appreciated in document "*O Sistema Educativo em Portugal*"[155], (Portuguese Educational System), on Eurybase, and that specifically mentions (p.186) that there must be space in the curricula for foreign language learning.

7. Conclusion

Although it is still early to make a balance of the transformations operated in Portuguese Higher Education by the Bologna Process, as time has not yet been enough to gather enough data to fully understand the consequences of such profound changes, the future of foreign language tuition in scientific areas outside the Humanities seems to have endured the first test of curricular redesign, namely in the Social Sciences area. It is a task to be continued in coming years, especially in countries like Portugal, striving to better equip their population in educational terms, in order to face the enormous challenges of a global labor market that requires language skills, namely English and in specific areas of its usage. In view of the fact that Portuguese secondary schooling does not seem to provide all students with the necessary competence in English language, the existence of its instruction at higher education level is justifiable and necessary, especially as it involves the upgrading of a strategic competence at no additional cost for students and families resulting as an asset for individual labor market integration, and collective labor force added value.

[154] See *InovContacto Internationalizing Careers* at http://live.networkcontacto.com/eng/Documents/inovcontactoenglish2010.pdf, retrieved 3 May 2010

[155] Available at **http://eurydice.giase.min-edu.pt/images/stories/pdf/PT_PT.pdf**, retrieved 3 May 2010.

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Abstract

Dynamics of market economy has led to the situation in which control of an organization and counteraction to competition are based on management methods. As it is demonstrated in (N.V.Tikhomirova, S. N. Isaev, (2007)) the activities of higher education establishments (HEE) are also bounded with economic appearances and vise versa. The analysis of such interaction is an urgent problem since it creates conditions for HEE work and through that contributes to forming the economy of the country on the whole. An effective functioning of education system is always conditioned by economy needs. Over the course of the last decade, the issue of human capital has risen dramatically in public policy importance globally. Policy makers now accept that investing wisely in knowledge, skills and innovation is one of the best means available to ensure long-term prosperity, leading to both overall economic growth and to better education and work opportunities. Around the world, governments must respond by increasing their policy focus in all areas of education, particularly higher education.

Introduction

Today the dynamics of development of the education system is experiencing serious changes. Firstly, today economics is developing with high rate and reorganization of the education system does not comply with it. Secondly, traditional methods of education do not meet today's requirements. All the mentioned does not mean that the traditional methods should be rejected on the whole. They need to be supplemented with new ones. The question is: How should be the stated problems solved? It is recognized that investigation of natural laws on mathematical level is fundamental and always has significance. Is it possible to solve the above mentioned problems on mathematical level? There exist a number of modeled mathematical tasks in economics in literature. There has been even developed a united mathematical apparatus for several directions. However there are not any

models related to educational process organization or analyses of relations between HEE-economics. Several branches of science that are at junction of different or even far from each other directions have been developing recently. One of ways of educational establishments' assessment is the system of Balanced Scorecard (R. Kaplan, D. P. Norton. (2006)). Mathematical modeling of the system of balanced indicators is an urgent problem. A mathematical system of balanced indicators (MMBSC) will allow characterizing activities of higher education establishments with mathematical precision, analyzing the impact of one indicator to other. To design MMBSC first of all it is necessary to define the degree of the system freedom. In general MMBSC should incorporate indicators connected with scientific-technical potential of HEE and academic institutions, indicators of economic dynamics, indicators of self-organization HEE-Economics system, knowledge management efficiency, crisis situations, etc. Each of introduced indicators should be measurable or brought to dimensionless variable with some known way. MMBSC are well analyzed using Boolean algebra. It should be noted creation of MMBSC with Boolean structure has an important role, since with construction of logical functions in the frame of Boolean algebra the identification of any indicator will be evident with mathematical precision. As a result it will become possible to analyze activities of some HEE on the whole. A number a questions arises when we speak about mathematical modeling, including for example the type of the model, which could be discrete, continuous, piecewise-continuous, stochastic or deterministic. The educational process can be modeled as a continuous process, while individual sub tasks can be modeled in the scope of discrete mathematics. It is known that the subject of investigation with respect to educational process is defined mainly in terms of random factors, while deterministic cases should be treated for formulation and solution of stochastic processes. Thus mathematical modeling of educational process is rather complex and requires a comprehensive investigation both in attributes of educational process and definition of corresponding mathematical apparatus.

As it was mentioned above the economics changes with high speed while educational system does not match in time with it. The evidence is that the impact of higher education on economics is insignificant while logically it should be tightly connected to economic appearances and HEE should form and plan economics and vise versa. The problem that has risen recently is that graduates of HEE look for work and employers search workers, while qualifications of employees and qualification requirements of employers do not meet. Many firms spend great resources on increasing their employees' qualifications but sometimes they avoid institutes. This means that economics and HEE are not sufficiently integrated. The experience of former USSR as well as the experience of developed countries demonstrates that the educational process must be integrated or should in touch with the industry. But what directions are urgent and how can HEE adapt to requirements? The problem itself presents evidence that industry should start from HEE while realization must be performed by powerful manufacturers who need to be in permanent contact with HEE. Using the scientific technical potential of academic institutions is one of the most important factors. The system of knowledge management (SKM) today is totally capable to provide such contact. However, lack of uniquely determined mathematical tools of SKM designing makes it difficult to some extent. One of the tools for HEE- economic dynamics relationship modeling is the theory of control of stochastic and deterministic processes.

It is reasonable to assume that evaluation of educational process is confined in Balanced Scorecard approach. The input and output economic indicators for mathematical system of balanced scorecard

must be identified by using the theory of prognoses. The process of MSBS functioning is determined in experimental way and described by stochastic differential equations or through discrete transformation of the same equations. The system of knowledge management along with the system of distant learning makes one of the main parts of MSBS. From mathematical point of view it is necessary also to define the influence of SKM onto economic dynamics. The problem of SKM is a separate task. Proceeding from input and output data of MSBS, an effective designing of SKM should be regarded as a special mathematical task of information dataflow control. The graph theory can be successfully used as a tool for SKM designing.

One of the most important problems of SKM design is studying of individual processes of education. Observing different quality indicators will allow determining essential educational indicator. Statistical investigations have shown that changing of mentioned indicators is oscillatory. It is known that the theory of oscillations is well developed. It is worth to mention that applying of a powerful mathematical apparatus in problems under investigation has not been studied yet. It is conditioned by the point that the direction is rather new. But the results that can be obtained on this way are important, cardinal in analogy with results derived in the sphere of several problems of physics, mechanics, etc. It is necessary to apply methods of non-linear wave dynamics which are rather developed for that goal. Nonlinearity is taken into account considering the fact that a number of phenomena in nature can be characterized when nonlinearity of the system is taken into account. Thus air-blast waves occur only in nonlinear systems. Studying oscillatory behavior of educational indicators in the frame nonlinear wave problems can lead to detection of crisis situation effects in educational establishments. These results are interesting since the well -known results of the theory of big bang will find counterparts in the problems of education.

The effects of natural phenomena self-organization are thoroughly studied as a branch in physics. These models are developed; non-linear models are applied to explain essential processes of self-organization. A number of philosophy researches have been devoted to self-organization issues in synergetics. There are works devoted to investigation of economic systems as self-organizational structures. Interpretation of educational system as a self-organizational one can lead to qualitative results In the framework of non-linear self-organization the whole educational process can be modeled with stress on parameters that contribute the HEE development. In summary the expected results are: building a system of balanced indicators with mathematical exactness; description of HEE with some internal structure with external environment using mathematical apparatus that is normally applied in tasks of physics, mechanics etc. The model of educational establishment is supposed to build in analogy with nonlinear self-organization structures in physics. It is supposed to organize the management of HEE based on results of modeling investigation.

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Wallin, Erik: Experimental learning environments for societal extrapreneurship - adding meaning to the value chain for lifelong learning

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Abstract

In the EU-USBM-project on "University Strategies and Business Models for lifelong learning in higher education", the focus was set to the World as IS, i.e. what's going on in the field and what best practices that can be identified. In this paper we are focusing on the World as *IF*, when lifelong learning has become of major societal concern in order to survive in a knowledge-intensive economy. To take advantage of modern technology as an enabler of new and more future-oriented strategies and business models, we are elaborating on the dialectics between Mean and Meaning in the current historical context with the help of McLuhan (medium as a message), Vico (a model for the co-creation of commons), Baudrillard (value types for concrete objects and abstract ideas) and also Harding and Lessig (value creation in commons).
Societal extrapreneurship differs from traditional entrepreneurship in a number of ways, one of them being that the primary objective is to make a substantial change of society in longer terms rather than to make money in the short term. Often the idea is to prevent bad things from happening in the local context more than to invent new good things for the global market. Modern ICT in general and Internet technology in particular is basically an enabling technology, a set of new tools, instrument, languages and means to make possible new products, compositions, common experiences and new meanings.
The conclusion is that we do need an education process reengineering operation to tackle profound changes of our current educational system to be able to engage meaningful in lifelong learning with new business models with a good ICT-to-Business fit dedicated to societal extrapreneurship.

1. Introduction

Each generation of human beings is entering a world that they have not created by themselves and they have to accept most of reality as a totality with only small pockets of freedom for the own construction of a more personal and suitable world. Included in this inherited world of both nature

and culture are gravitational fields all over the place that expose you to the risk of falling, local languages that you have to learn in order to make your voice not only heard but also understood, the institutions that regulate the art of making deals with other people without committing crime and the family institution that expects your silent acceptance of the people that gave you life in the first place of existence, i.e. your parents.

Most of these features and institutions are *taken-for-granted* just as the air in the atmosphere is taken for granted as a "natural" feature of the world. You don't have to bother about these things because they are already taken care of by the context or environment you are in – such as a family, a language, a nation, a community or a city. Instead the energy is devoted to those more daily and specific components of the present world that you must pay attention to or have to care for, such as food on the table in order to complete the daily meal before going back to work. In many of these situations we can identify a background, a socially shared and taken-for-granted frame-of-reference, on which or into which we can place a foreground, a piece of reality in focus for our concern such as the food and the bottle of wine put on the table. Our current society is heavily biased towards the foreground. We notice the message but not the media or the context for the message. We build factories for the mass-production of consumer goods but do not care about the effects on the environment when all these goods are consumed, i.e. destructed and turned into garbage.

1.1 Change agents and innovations.

We have at least three types of change agents, innovators and entrepreneurs:

- *Intrapreneurs* that try to develop a new routine, a new solution, a new product or a new idea for exploitation within an organization. Because most organizations have rather rigid frames to work within, the Intrapreneurs are often stuck and do not easily generate a solution that on the one hand is new to the organization and on the other hand is close to the general frame that defines the organization (in terms of mission, governance, management, business process, machinery, clients, suppliers etc.).
- *Entrepreneurs* that basically build up a new Win-Win-relation between a problem owner (a customer, a client, a problem owner) and a set of resource owners (suppliers, artists, producers, service providers), so that the problem is solved (Value to the Customer) and resources are capitalized (Value to the Producer)
- *Extrapreneurs* that works in a rather unstructured environment in-between different organizations and contextual frames for human action, such as Academia, Industry and Public Authorities. They figure out substantial innovations that shake the current ground and offer a new common ground that is new not only to people and organizations but also to the whole world. Extrapreneurs are societal entrepreneurs that contribute to the disappearing of on Old Frame and the evolution of a New Frame for interpretation, talking and action.

We need such societal entrepreneurs when a typical university switches from 2 % off-campus distance for regional students to 95 % learning online, off-campus and targeted to students with well developed plans for their competence development, asking for eLearning offers on demand. So let's take that as a challenge and investigate possible means and meanings for such an undertaking!

2. The Irony of Commons

Commons can be seen as the backgrounds that give meaning to the foregrounds of daily life. They always come into existence *before* the foreground (first a common vision, then daily collaboration), are *larger* (first land, then real estates for buildings) and they define the *potential* rather than the actual (first the genotype, then its phenotype). They also constitute the language available for articulations of meanings and the degrees of freedom available for what can or should happen in the foreground, operating like a constitution that delimits what is possible and indicates what is "right".

One important aspect of the commons is that their reproduction and regeneration mostly is simply *a matter of usage*, just as our daily language survive by our use of it. But if we don't pay our attention to them and don't care for their sustainability, they can easily deteriorate such as the Family as a social institution. Another important aspect of the commons is that they seem to be *impossible to construct* or re-establish by our current social instruments and technologies just like love between people cannot be forced on them. A sustainable common must be the result of a joint voluntary mass collaboration for co-creation of means to share common interests, such as the re-production of the population via a Family institution.

One of the general problems identified in the scientific studies of commons is the "*Tragedy of the Commons*" (Harding, 1968) based on the low degree of concern for the common good by ordinary people which leads to deteriorated commons of land, water, air and other physical resources due to heavy exploitation of the common for private purposes only. In the digital world of commons, the quite opposite features can be observed as examples of the "*Comedy of the Commons*" (Lessig, 2007) where co-creation and use of ideas lead to very creative commons of immaterial digital artifacts that are shared in a virtual community and steadily growing as a shared, common asset if the handling of Intellectual Property Rights are handled with care, such as marked with the Creative Common label.

The *Irony of the Commons* is that we tend to discover them too late, so when we need them most, they have deteriorated or been converted into crack-ware that cannot work as fruitful common backgrounds anymore. And if we try to make a formal organization of the old taken-for-granted common it would probably show up as *an ironic expression* of what we were thinking of. Commons cannot be formally organized by the same principle reason that love cannot be organized. It has to *be cared for*, not counted on via a formal contract of rights and duties about the number of kisses you could expect per day per partner.

In the attention economy, what code-of-ethics should be developed to reduce the most obvious destruction of people's attention space by commercial advertisements? Have we switched to something else than a TV-program when more than 60% of the expected attention from the customers is devoted to repeating, dull, in-attractive commercials that disturb the mental capacity to attend the other 40% of time to an announced American drama?

What earlier was a simple expression of a well-established *theory of every-day life* (common sense) turns out to be an articulation of *an ironic theatre play* (artificial show) with actors that exaggerate and detach the drama from its normal connections to the (detoriated) background so that the implicit and taken-for-granted but cracked background becomes visible: reality is *dis-covered* and even laughed at as we notice the big gap between expected and actual performance. In such a situation a new deep going creative learning process is often triggered in order to better understand the situation and establish a new framework that better fits the world as it is.

In the Ironic situation a double audience is created: one party that understands "the ironic additions" or extremes of the expressions (and perhaps laugh at it) and one party (that might be the performers) that miss to understand the "additions" or "overstatements" as they think they show "normal" expressions (that you should not laugh at). The *Socratic ironic method* is using such mechanisms by making "innocent" (but professional) inquiries of his dialogue partner that successively leads to the insight that the initial, dogmatic assumptions about the subject matter is not valid any more, creating true self-directed learners by going to the extremes of the first basic assumptions, question them and find a better ground for thinking.

3. Vico's model for the civilization process

Giambattista Vico (1668-1744) was one of the first philosophers that elaborated more deeply on the relations between "reality" (what we actually create and live in) and "poetry" (originally meaning what we can express and do with language). For Vico, both the language and the societal reality were collectively constructed commons with co-created and shared artifacts made by people over a long period of history where many features in these societal work processes were made "spontaneous", without a blueprint, and with a complex net of components that hang together as a culture with also new commons, such as markets.

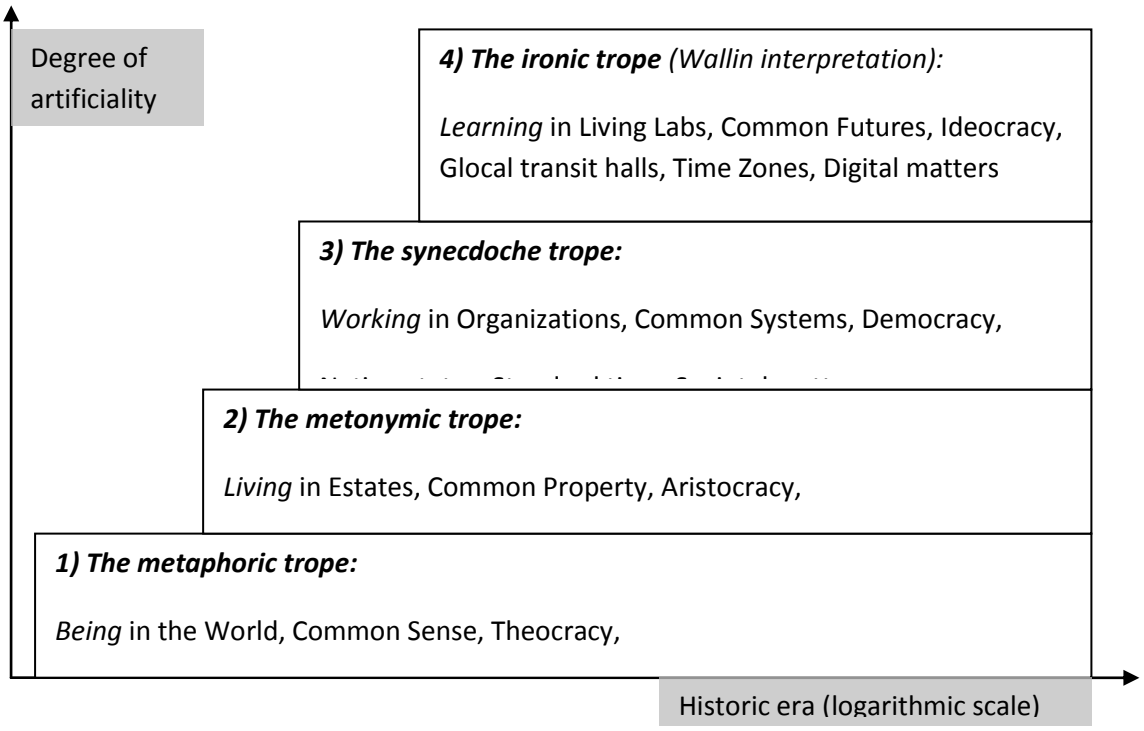

Figure 1: *Vico's model of the civilization process. (The Ironic trope was not described in details by Vico).*

Vico's model (Vico, 1979) of the civilization process ("corso") is composed of four *tropes* that build up the set of shared commons and societal instruments in a logical and chronological sequence where each layer becomes the background for the next layer until the Ironic trope has to restart the next civilization process ("ricorso"). The four tropes or phases are depicted above (see figure 1):

3.1 The metaphoric trope:

This is the start of a new civilization in which people share their sensual experience of the world as it appears for the normal senses when people see, hear, smell, taste and feel different features of the world such as sunshine, thunder, fire, blood, and sexual intercourse. These shared experiences constitute the first common ground and the first common sense of the world. To communicate about it a primitive language evolves by trials, errors and corrections to designate some of the outstanding features of these shared experiences with primitive symbols, signs, utterances, expressions and single words. The world is endowed with general qualities like *Up-Down* (based on the experience of gravitational forces), *Cold-Hot* (based on the experience of weather, cycles of days and seasons) and *Soft-Hard* (based on experiences of different matter, such as flesh and bones). The naming convention in the metaphoric trope is based on transference from one known field to new fields of experiences based on similarity. A new born boy might then be called "Stone" as he shares qualities with the stones in the environment.

In Vico's model, this is the *era of the Gods*, because it is natural for the people to formulate the first common theory of the World that "behind" the scenery there are supernatural beings and spirits (Gods) that you have to try to understand in order to survive in "their" world, for instance to be

given rain at the right season (by rain dances). Some of the dynamics in daily life are interpreted and understood as caused by the Gods. The whole world is considered to be governed like a *Theocracy*, ruled by the laws of the Gods. And the world is considered without geographical or temporal boundaries due to nomadic living and cyclical time. The typical society at this stage of civilization is a nomadic tribe of Native Americans in the first millennium living in a large territory with a lot of social events to practice the theory of what it means to be a human being in a universe populated by Gods and ancestors that have left to the spiritual world.

3.2 The metonymic trope:

If the metaphoric trope made it possible to put the "first names" on creatures and phenomena in the world, the metonymic trope contributes with the "second names" and additional attributes of the subject matter, indicating relationships, associations, heredity and familiarity with some of the already named features of the world. Metonymic naming means to exploit the neighborhood, the vicinity and the local associations of the phenomena so that you can talk about a "singing room" when you mean that many of the people in the room were singing. The boy named Stone was perhaps related to a man named "Sunshine", being his father, so it would be meaningful to call him "Stone Sunshine" as a grown up individual. So the naming convention was extended with "second names" of creatures, indicating their ancestry, their birth place, their originator and their other relations to already named creatures, things and places – and positions of the stars at birth. This made the shared common world much richer linguistically and also interwoven so that each person, thing or place could be related to other persons, things, places, times and other "co-ordinates" of the world. The world was given a socio-linguistic and time-geographical frame-of-reference, *a semantic web* that make the world much more intelligible down-to-earth, rather than up-to-heaven.

In Vico's model, this is the *era of the Aristocrats*, because it was natural to select only a few key entities ("co-ordinates") to relate to in this "second naming" process: the growth of new vegetables, animals, artifacts and even people could most effectively be related to some few addressable sources, such as a delimited piece of land (controlled by a landlord), an already defined stock of animals (cattle managed by a stock-farmer) or an already defined group of people that belonged to a family (a heard of slaves). These "addressable", "coordinating" and "accountable" set of established property owners could easily convince the other people (the public and the vagrant subjects) to relate any "spontaneous" growth to *their* already defined property with its coordinate to maintain the established order of things. A clear differentiation is thus made between the concept of *real property* (an estate, an immovable, an establishment, a castle) and *currency* (things, movables, detachable properties, wilderness). Only the first type of property is able to generate *autonomous growth of economic value*, while the second type will only have decreasing economic value, as no added value will come from the general social civilization process. Most modern house-owners are experiencing this land rate effect of civilization growth, especially in urban areas.

In this phase of civilization the governance is based on *Aristocracy*, ruled by the laws of the people that were in control of the domestication instruments. Nations and states are formed and a second theory of *the world as a domesticated system* begins to take shape. The typical society would be a small Kingdom in the European middle ages with a well-defined boundary (a wall) between the

interior and the external world. Most people are ascribed the roles to play in the local drama rather than achieve positions in competition with others. The *Rites-du-Passage* in and out of society and its positions are well-defined and often regulated by passports, visa, certificates and different kinds of duties, taxes and imposts according to the laws defined for the survival of the local society. The cosmology is based on rather low mobility in enclosed territories with local artificial timers, such as church-bells to call for high mass.

3.3 The synecdoche trope:

In this phase there is a general systematization going on, so that the semantic web developed so far and the contextual bindings of the phenomena are made more evident, simple and structured into more elaborated and really *theoretical and fabricated frameworks*, such as Linnaeus taxonomy for plants, the subdivision of the whole territorial world into autonomous nation states, a central registration of all landed property for taxation purpose ("rent on living space"), national registration of all individual citizens to keep track of their residency and taxation, a national calendar with a common set of holidays, national celebration days and defined rules for book-keeping and the measuring of costs and income. The principle is that of *pars-pro-toto*, i.e. that one exemplar of a thing, a person, a place, a day or a creature can re-present the whole population of the same type of creatures as all individual examples are handled equal, follows the same rules and are *socially defined according to the same template* (all citizens are equal). Different procedures evolve to make the proper selection of the best representative of such things, such as political parties to select representative people from bottom-up to populate parliament with a representative selection of people that represents the whole set of citizens, at least with the general set of ideas defined in the party program.

With these new taxonomies, administrative units and management procedures for the worldly matters of concern, the whole society became more controlled and possible to manipulate as the rules of the social game were also made wide open to the public as otherwise the people could not follow the rules – they were educated and brought up to fulfill their duties. And because of that, ordinary people could be given power to change, delete, add or revise this social fabrication of instruments. This empowerment of ordinary people to create, manage and develop further the civilization created a big jump of citizens *from reading and obeying subordinates to a writing and authoritative majority*.

In this phase of civilization the governance is based on *Democracy*, ruled by the People (representatives), for the People (citizens) and by the People (public authorities). The typical society would be Sweden as of today in which there is a general transformation of old informal, semi-public, secret and concealed communities ("Gemainshafts", autonomous villages, guilds, idealistic associations, families etc) to new formal, public, transparent and controlled organizations ("Gesellschafts", geocoding of estate boundaries, legally registered juridical persons, officially recognized professions, registered partnerships etc.). The whole socio-economic sphere seems to be under control, also meaning that if something goes wrong there should always be someone that is accountable and responsible for the failure. Destiny, the Gods, the Kings, the Lords and the Masters are no longer responsible for what is happening in this phase of civilization. The causes for what

happens have to be found among responsible persons that have been ascribed accountability for what happens within a specific action space, such as acts performed within a Limited Company - by constitution an organization without personal responsibility (sic!). We will call this type of society a *Welfare System*, normally associated with a defined territory (jurisdiction) and a defined group of people (citizens).

In difference to the other societies, the Welfare System has low degree of autonomous growth as all economic growth is considered controlled and created by a defined accountable originator that have made efforts and investments in order to generate the growth. What people do in idealistic and informal associations, sports, clubs, families and other "non-profit" and social organizations have not been considered as relevant for economic growth and are therefore exempted from tax and their (immaterial) wealth is not considered relevant for redistribution among other citizens to create more justice for those without such social inclusion and participation in social networking activities. As a consequence, one of the most important taken-for-granted institutions in a society, the *Oral Promise* between authentic persons in social contexts, is continuously degenerating and turns into nothing or a formal *Written Contract* that regulates rights and duties between contracting partners. When nobody believes that you can trust another person, then the social drama turns into the early stages of the ironic trope.

3.4 The ironic trope:

In this last phase of the civilization process (which Vico have only indicated in its details), the theories worked out for the understanding and control of the Welfare System as a socially constructed artifact begin to crack and disintegrate. The theory of the modern welfare system is too simple or too complicated to be of help for many of the ordinary citizens. On the one hand it is *too complicated* for immigrants and aliens that – according to the theory of the Welfare System - are expected to be "equal" in the sense that they also should follow the rules set up for the citizens and adjust to the templates worked out. But that is very difficult for people with another mother tongue, another religion, another concept of the family institution etc. So a new social division takes place, not between the Masters and the Subjects as in the earlier era, but between the *Aboriginals* ("native citizens") and the *Aliens* ("immigrants") living in the same geographical territory.

On the other hand the Welfare System is *too simple* (at least in theory) to allow a very high degree of freedom for entrepreneurship, innovation, new lifestyles, new arts, new housing and new networking patterns. So an additional social division takes place, the one that differentiates between the *Ordinary Citizen* (the one that the system has pre-defined templates for) such as a Patient, an Employee, a Student, a Resident, a Retired, etc and the *Deviant Citizens* (the special and unique persons that the system don't have the templates for) such as a transvestite Muslim billionaire that converts his house in Sweden to a new international church with a for-profit business model to offer higher international education integrated with teamwork for the poor. To make it, that person must devote a growing number of hours to convince the authorities that current standards and templates do not fit to his enterprise so some form of a special handling must be done within the current set of laws and regulations in order to avoid criminal acts that are illegal and goes beyond the current Law

or Code-of-Ethics. This would generate new exceptions to an established Common Sense that further contributes to its deterioration.

The accumulation of wealth by performing a living by working (which is what the Ordinary Citizen is expected to do), is not really convincing when people begin to understand that it is better to earn money by buying and selling real estates (rather than using them as homes for long-term living), speculate on shares in fast growing companies in China (rather than investing in local social enterprises), etc. A growing number of free-raiders of the Welfare System do not care for what happens with the Oral Promise institution when they rob old ladies in their homes by pretending they will help them. All these abnormal behaviors and events when interpreted and handled within the Welfare System generate still more abnormality, new exceptions and new contradictions such as when people begin to set up business operations targeted to commit crimes that are so difficult to solve by the Welfare System that those who are charged for the crime must be given *financial compensation for being brought to justice without a final sentence*. In fact, when such acts are performed, the normal citizen begin to wonder: is this a phenomena you should expect to happen within "our" society, i.e. events you should expect more of, or is this phenomena produced by some artists or provocateurs that just would like to make us aware of what the Welfare System could produce if all of its potential is actualized in its extreme: Shall I apply Theory or should I watch Theatre? Believe it or not?

4. Adding value to lifelong learning

We have found that the value theory of Jean Baudrillard (1929-2007) as discussed by Bernard Marchand in an application to housing (Bernard, 1982) is of high relevance for discussing the value adding in the different phases of learning – from initiation to termination of a learning process. The value framework consists of four different value types:

- *Use value* represents the usefulness of an object, such as readability of a textbook. The use value varies from person to person and depends on the situational context. Learning how to drive a car is less useful for someone who does not own a car than for someone who does and depends on the availability of roads to drive on.
- *Exchange value* is most commonly expressed in monetary instruments. Exchange value possesses some kind of objectivity as it is the value that may be compared to the value of other similar objects. However, an exchange value is only viable for one specific market, and it is only some goods or services that legitimately can be exchanged or acquired by money. To some extent learning outcomes can be converted into exchange values as a new skill may trigger a salary-raise that generates money to the learner.
- *Sign value* bears witness to the position of its owner. The outcome of a learning process could be the right to represent and articulate a higher value such as The Truth, i.e. the social rank is increased. For some learners the sign value generated by being approved by some organization may be the principle outcome desired: to get the ring or the title, such as Dr instead of Mr.

- *Symbol value* is the most complex value type. It is acting unconsciously and can explain why some people are mysteriously attracted to some places and buildings while others are not. Of the four value types, it is only a symbol value that people are willing to risk their lives for. A symbol value is often connected with attitudes, ethics and moral and often indicates membership in a higher complex, such as a nation state (with the flag as a symbol).

A typical set of value adding operations for the provision of learning can look like this with indication of what value type is of highest concern in the specific unit of operations (see figure 2):

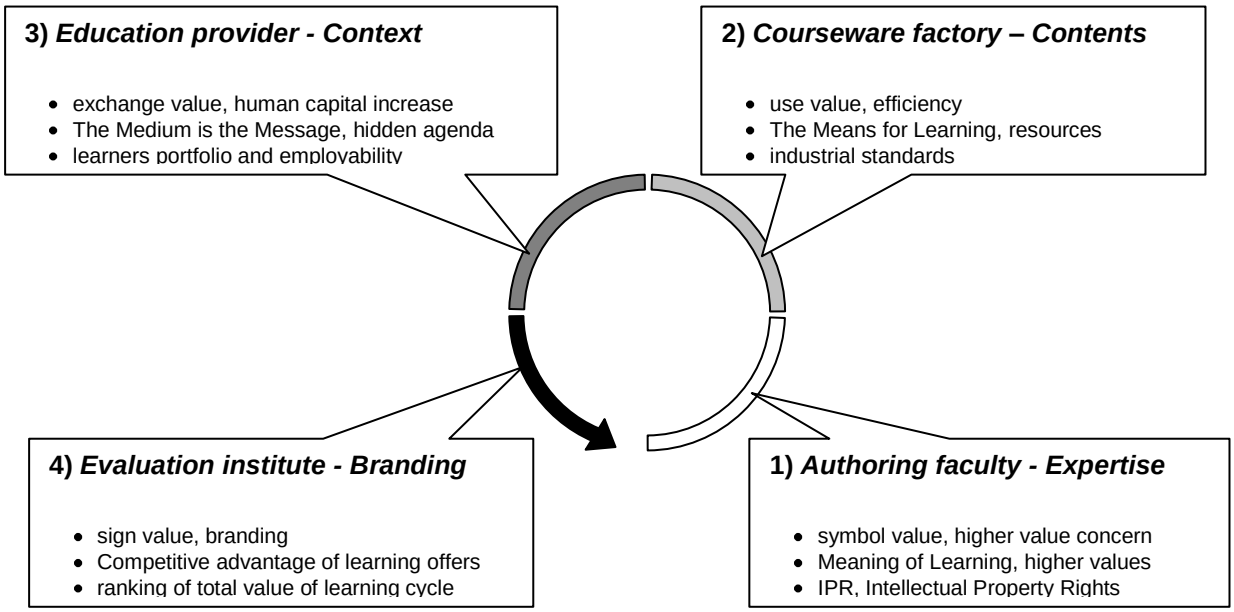

Figure 2. *Value adding in some strategic business units for operations in four phases of a typical education and 4 learning process*

The total accumulated value is very difficult to measure in absolute terms (depending on the different types of values involved and the corresponding ontological transformations of values from one phase to the next). Instead a relative ranking of the results must be made by comparison to other course-learning offers. A dedicated evaluation institute should be good at that by setting up evaluation criteria and making advanced judgments of the benefits and costs involved in comparison with other similar process. In this phase the sign value is therefore the key value to measure and manage. Ranking lists of MBA programs are examples of this. It is also natural that this kind of evaluation should preferable be made by a party that do not have any vested interest in the learning process cycle as such. Only then will the measured rank be respected by all stakeholders involved.

5. Three generations of ICT-enabled modern enterprises

5.1 Enterprise-I:

Enterprise-I has *Web 1.0* – a web of hypertext pages – as the enabling technology. Making eLearning as a virtual bookstore or class room are typical examples of Enterprise-I. As we all know, the Internet started as successful experiments in linking different kinds of texts, sounds, images, video and other hypertexts to each other in a distributed network of computers. The evolution of this hypermedia has been enormous and today we have become used to also consider market transactions on the net via electronic transfer of money as natural. The first wave of internet business operations was heavily biased towards the classical shop as a model for eCommerce and eBusiness operations. Web 1.0 is built up of only some few authors and writers of the hypertext presented and a majority of readers and browsing web users. It is a *Few Write – Many Read Web*. Enterprise-I is working with the old sequential value adding chain based on market exchange of goods and money. This is the old value chain as formulated by *Michael Porter* in the 60´s, very much oriented to the differentiation between value adding business activities and supporting activities. From a more general perspective, the value adding is primarily based on making more advanced artifacts out of natural or raw constituents. It is a Producer – Consumer oriented model for exchange where the output is a product or a service that is worth paying working time and money for.

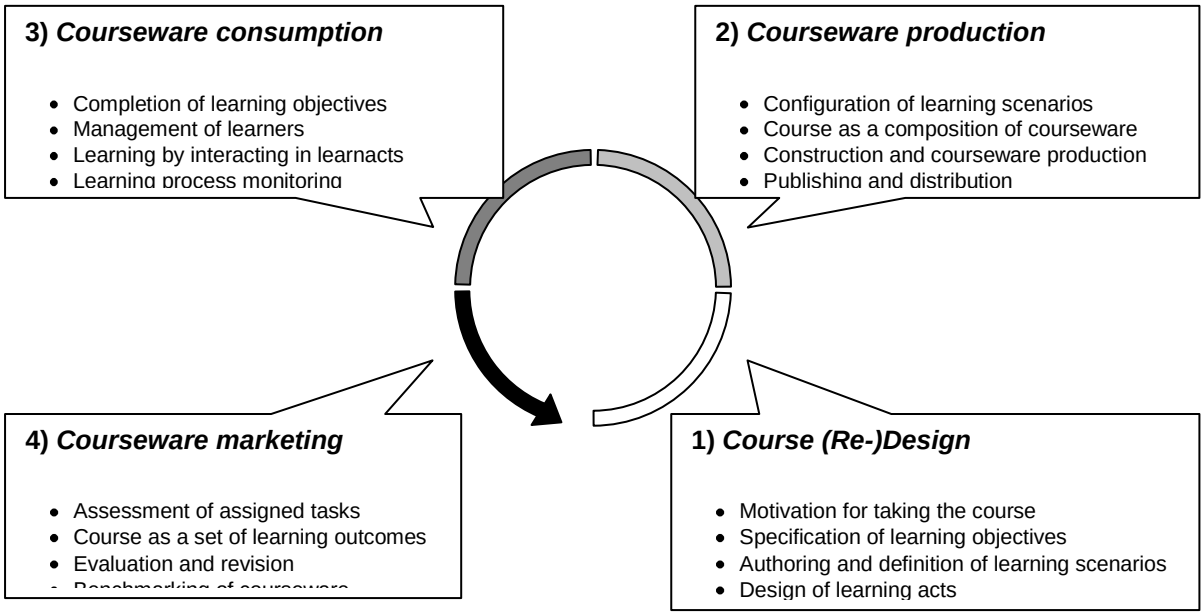

Figure 3. *Value adding in strategic business units in the four phases of a learning process in Enterprise-I mode of operation.*

Enterprise-I for learning follows the industrial growth model with the market as the medium for value exchange between a buyer (consumer) and a seller (producer). Those who are engaged in the production are considered as workers and must be paid for their allocation of personal attention to their work.

5.2 Enterprise-II

This business model is based on *Web 2.0* – a web of people – social networking and rising value of live events. Over time, most people have learnt the basics of Web 1.0 and have established their personal eMail accounts, electronic membership cards etc. in order to take full advantages of the web. By doing so, they have to present themselves to the world of other web users, not only the formal organizations that ask for their credit card, but also informal communities of old school mates etc. So we have a growing number of services for social and professional networking. Enterprise-II is working with Value chain 2.0 – *extended collaboration with the customers and end users*. This value change is currently discussed as the logical consequence of running a business when the customers become partners in the production process by participatory design of new products, services and events. It is a collaboration oriented model for mobilization of professionals and amateurs into co-creative permanent or ad-hoc communities such as a unique musical event in a unique setting where the output is a shared and common experience of something worth devoting personal time and attention for by booking up necessary localities, professionals, participants and other resources in advance.

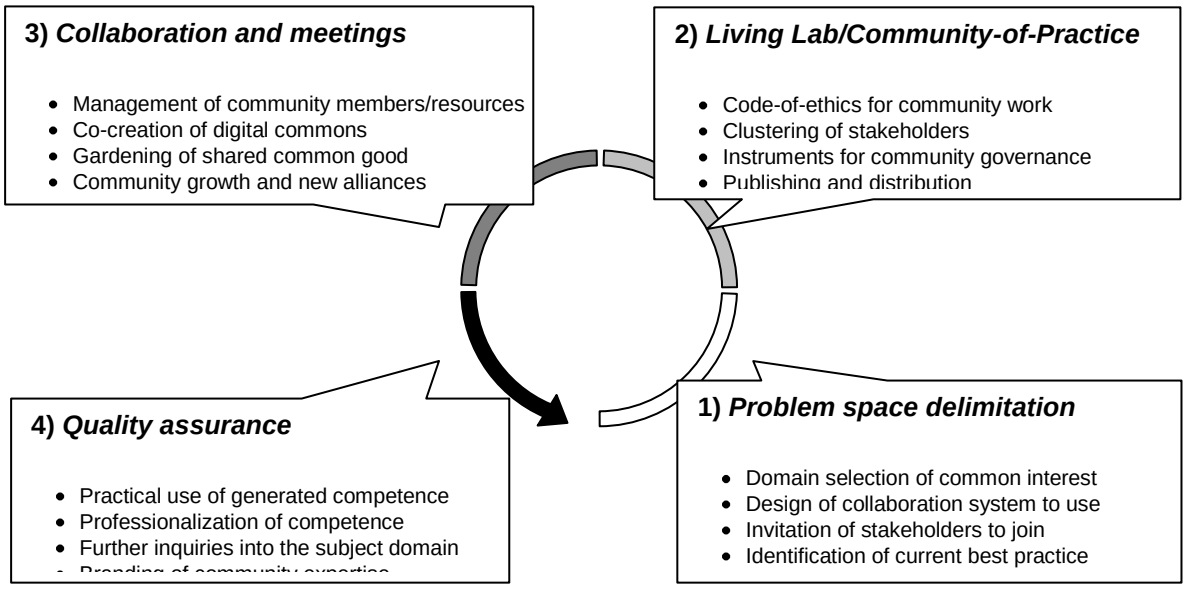

***Figure 4**. Value adding in strategic business units for operations in the four phases of a learning process in the case of an Enterprise-II.*

Enterprise-II for learning follows the business model for *experience-based economy* with a unique place and time as the medium for value exchange between a participant (attendees) and an event composer (coordinator). Those who are engaged in the community are considered as co-workers and are not necessarily paid for because community work is supposed to be of self-interest for all concerned. Those who are engaged in the collaboration and public meetings must normally pay in advance to reserve a seat for the unique event. In this model lifelong learning should perhaps be seen as one of the most promising industries in the new experience based economy. As such it has stronger relations to other branches in the creative industry - such as interactive media, tourism,

theatre, film, game, adventures, sports and dining - rather than to only other parts of the education system (the situation today). Learning history by playing a role in a historical drama is a case in point. The value is based on experiences in a unique present situation that typically is difficult to scale up to a wider audience or repeat the event too often at the same place. Enterprise-II works with the world as it happens, i.e. The World in the Present, to be experienced and shared with others that have joined the cluster of actors in the field.

5.3 Enterprise-III

This model is *not yet visible* on the market but can be expected to show up soon when a critical mass of users are working "up in the clouds". It is based on *Web 3.0* – a web of things- and micro-meanings that can be picked up from "smart instruments" out there. Many products and systems of today are equipped with different kinds of sensors, processors, transmitters and other "micro"-components of ICT. They are sending messages to other smart artifacts and to people that have their attention set for receiving messages on the actual channel. Web 3.0 is also called *the semantic web* because most signals and messages will have no meaning if there are no *meta-data structure* imposed that give meaning to a specific signal – such as a wake-up call. This model is based on the upcoming Value chain 3.0 – Personal and cultural exchange of means and meanings. This is the emerging new type of value chain that is very much oriented to smartness and intelligence on almost all systems level – from smarter cells to smarter cities and even a smarter planet. It is a *Inducer – Assumer* oriented model for the co-creation of both big and small meanings, such as the meaning of a piece of art and the meaning of life on planet Earth, where the output is a shared, common meaning worth learning more about and caring for.

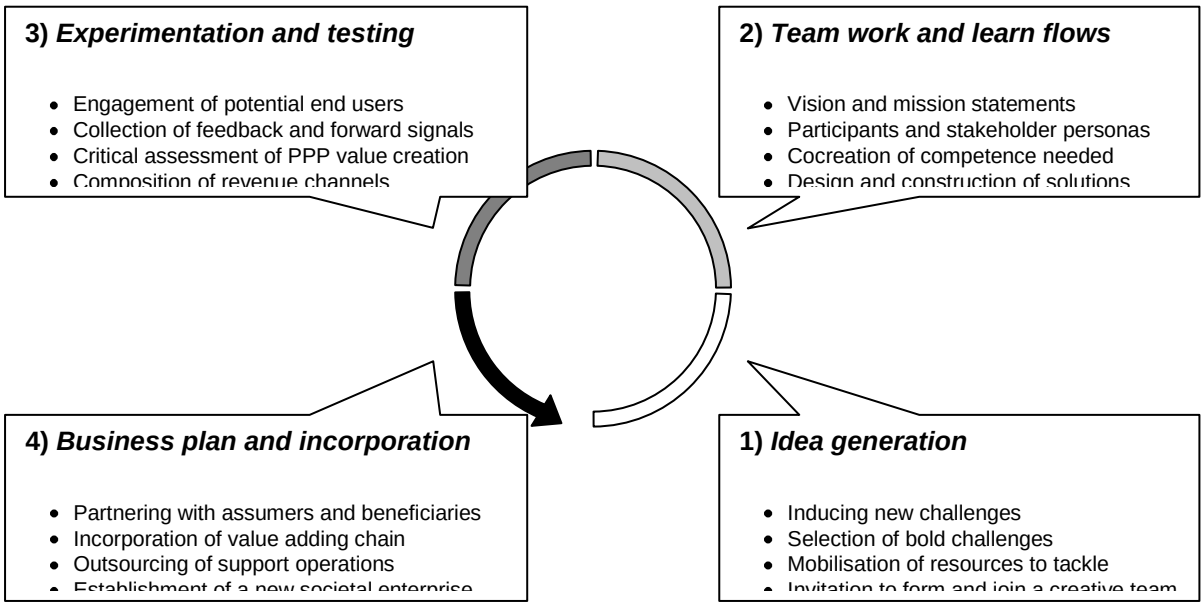

Figure 5. *Value adding in strategic business units for operations in the four phases of a learning process in the case of Enterprise-III.*

Enterprise-III for learning follows a new model for both *personal and cultural growth* with the Internet as the medium for value exchange between an assumer (beta-testers, beneficiaries) and a set of inducers (challenge-originator, co-creators). Those who are engaged in the team work are considered as engaged shareholders of a digital common in development and will be paid later – in the future - for their allocation of personal attention to their creative work. Those who are engaged in the experimentation and testing are considered as stakeholders and possible sponsors or investors that also are expecting some Return-on-Investment (of attention). In difference to the other enterprise models, the Enterprise-III model is almost totally devoted to future matters: the World in the Future to be realized. One of the models used for converting original ideas from challenges to new societal solutions is called Crowd *Sourcing*.

5. Discussion

Obviously, there is a need for a cross-disciplinary and even a trans-disciplinary approach to tackle the issues involved in the old physical and the new digital commons. For the generation of professional societal entrepreneurs in lifelong learning programs, our proposed approach to the matter is to take:

- a rather *long view of our society* both backwards and forwards, inspired by Giambattista Vico's model for the combined development of language, technology and reality in the history and civilization making process,
- a *systems science perspective on commons* as complex dynamic systems that need more advanced inquiring systems to investigate in order to understand and re-generate them correctly, avoiding too disruptive ironic situations (revolution and terror) and contribute to long-term benefits for society and the environment.
- an *extrapreneurship-oriented perspective* by which even big problems might be considered as great opportunities for creative ideas, innovations and new business models to offer solutions to the problems with a concern not only for *Profit* but also for *People* and the *Planet*, i.e. a Triple Bottom-line for the results.
- a *deep learning and discovery perspective* where you can learn more about the commons by more experimental and "risky" assignments where you can provoke, experiment with and simulate a system's potential to see what might happen if you *let the system under investigation go to its extreme*: is the system sustainable or not?

Vico's dictum for learning "*verum ipsum factum*" means that if you would like to know the truth about something, you have to create it. Applying that to the civilization process means that in order for ordinary citizens to know the truth about their own civilization, they have to create it. A number of new socio-technical means are available for this. In the European context, a network of *Living Labs* have begun to grow (Mirijamdotter et.al, 2007). Living Labs can be seen as one of the most recent generations of innovation spaces where academia, industry, governments and ordinary citizens collaborate in different clusters and business eco-systems. For complex systems of services it is necessary to have the complex of services *integrated and easily adaptable to its context*, such as energy production in a housing area or mobile navigation services in a mountain area. The Living

Labs model starts with the end-users need in their daily life context and that population should join the other stakeholders from the very “first mile” of the innovation process.

Our current work in the field of lifelong learning is targeted to create a new Enterprise-III model for experimental learning and testing of societal innovations that might be good not only for Profit, but also for the People and the Planet. A first version of the business model is currently under implementation in the clouds as *a virtual academy for societal entrepreneurship* based on the ideas and frameworks elaborated on in this paper.

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Willems, Patrick: The essential role of expertise associated with natural resource sectors in climate change education and its integration into collaborative Masters curriculum

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Abstract

Basic human needs are met by natural resources, while their availability and access are critically affected by climate change. Of the natural resources, water is of paramount importance, being the source of food and life. These simple facts do not provide the only reason, however, as to why it is important to include significant consideration of natural resources in climate change education. Also, the expertise associated with natural resource sectors is inherently multidisciplinary, focusing on real-world problems. Water expertise for example incorporates social, economic, environmental, health, political, institutional, technological, and other aspects. Specifically in relation to climate change it combines:

- Earth system sciences, especially meteorology, and climate science, hydrology, geography, ecology, etc;
- Technology and the key role of engineering solutions for efficient use and regulation of water;
- Management, but a particular kind of decentralized water management based on multiple-stakeholder cooperation which is able to adapt flexibly to the uncertainties brought upon by climate change.

The exploration of the contribution of water sectoral expertise to climate change education, and the competences with which it is associated, is framed within a European Union Erasmus project 'The Lived experience of climate change: interdisciplinary e-module development and virtual mobility'. The project brings together five distance teaching and three conventional universities across six EU countries, plus the EADTU, to create Masters curriculum in the area.

Introduction

The availability and access of natural resources, and more particularly of water resources, are of paramount importance, being the source of food and life. They are, however, critically affected by climate variability and trends (IPCC, 2007), mainly due to the effect of changes in precipitation, temperature and evaporation on water stress occurrence and related food production (agriculture). Consequently, the impacts of climate change on natural resources such as water are extremely important to our societies. Based on future climate change projections, that importance is expected to increase significantly the next

decades. Figure 1 shows the number of people at risk from hunger, malaria, coastal flooding or water shortage due to projected increases in temperature arising from global warming (Parry et al., 2001). The figure shows that the number at risk from water shortage is in the order of magnitude of billions, which is about a factor 10 higher than other risks such as hunger and malaria. Many experts warn that in the future water crises might become much more important than energy crises or other types of societal problems. This is not only due to climate change but also due to population growth, economic growth and related increases in welfare and urbanization. The changes are in general strongest in developing countries. For these reasons, water sectoral expertise, and the competences with which it is associated, is considered of high importance when dealing with climate change education. The contribution of such water sectoral expertise therefore will be explored in the European Union Erasmus project 'The Lived experience of climate change: interdisciplinary e-module development and virtual mobility' (see Wilson, 2010, Wilson et al., 2010, and Abbott, 2010, for more details about this LECHe project). The project brings together five distance teaching and three conventional universities across six EU countries, plus the EADTU, to create Masters curriculum in the area. Water (including its role in developing countries) has been selected as a focus theme for the LECHe project.

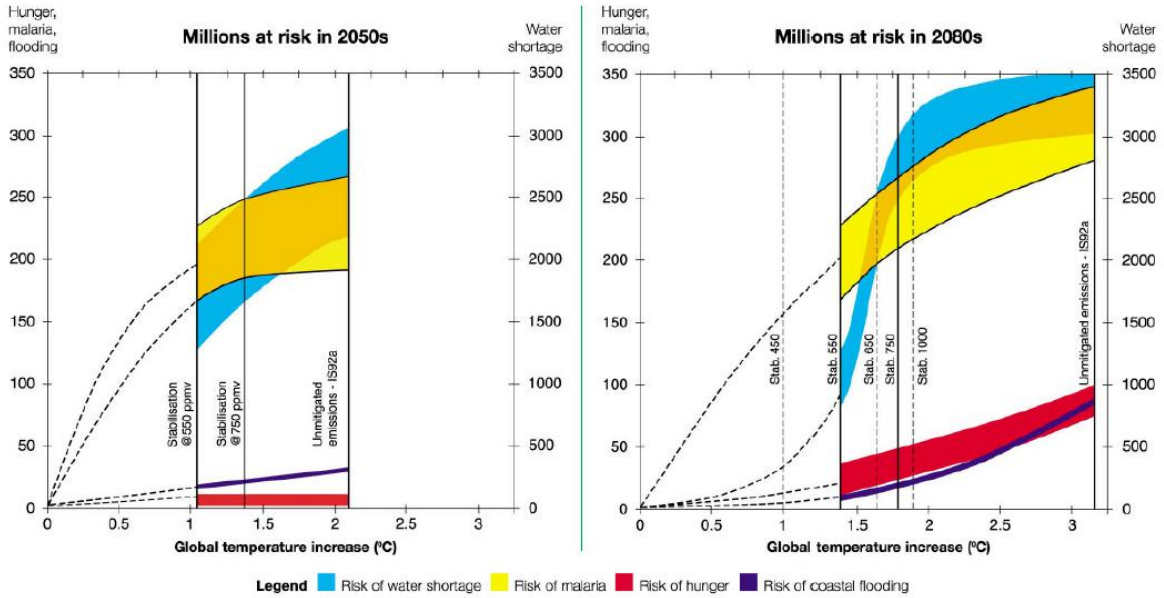

Figure 1. Expected number of people at risk worldwide due to hunger, malaria, flooding or water shortage, in relation to global temperature increase by 2050s and 2080s.
Source: Parry et al., 2001

Learning from past experiences

Although climate trends due to global warming have been on-going for several decades, their impacts are so far rather limited, when compared with the projections made for the next decades (IPCC, 2007). The lived experiences so far of the global warming trends are consequently also very limited. However, many populations worldwide frequently suffered in the past from water related problems due to climate oscillations. For instance, the Sahel countries in Africa have been highly affected by famines following

severe droughts in the 1910s, the 1940s, and the 1960s, 70s and 80s. During the severe drought period of the 1960-1980s, famine killed about 100,000 people, caused dislocation on a massive scale, left 750,000 people dependent on food aid, and affected economies, agriculture, livestock and human populations of about 50 million people in total (UNEP, 2002). At this moment, East Africa (e.g. Kenya) faces its most severe drought in decades. Crops and livestock are being destroyed, and millions of people urgently need food. While these and other populations suffer from water scarcity, other (or the same) regions have been affected by severe flood events (e.g. the North Sea storm surge in The Netherlands in 1953; the Scheldt river flood close to Antwerp in Belgium in 1976; the Elbe river flood in Germany in 2002; etc). Other examples of severe water related disasters are shown in Figure 2. The lived experiences by the affected populations during such episodes clearly will help to improve our understanding of the expected lived experiences in the decades to come. The experiences involve social, economical, environmental, health, political, institutional, technological, and other aspects, hence showing that the the sectorial theme "water" is of multidisciplinary nature itself.

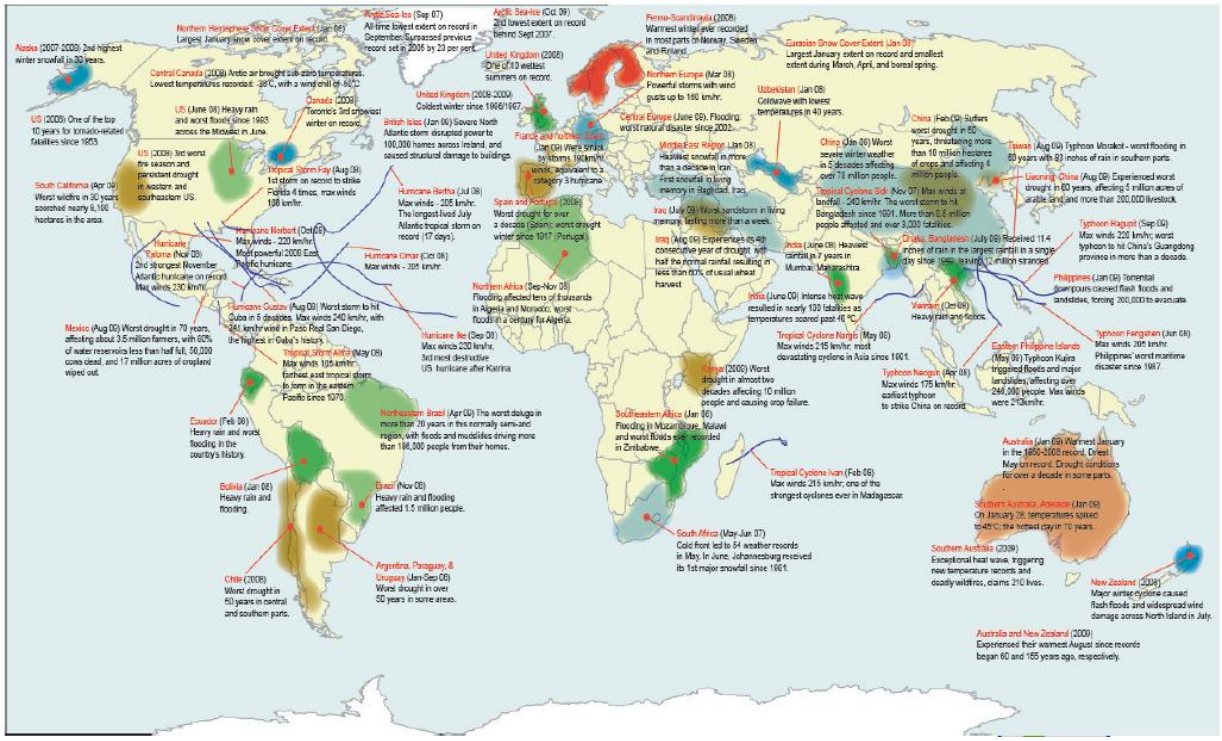

Figure 2. Selected severe water related disasters during past decades.
Source: UNEP, 2009

Changing role of management strategies and technologies

When dealing with climate change impacts on water systems, water management and technologies play an important role. Water management strategies and related technologies can indeed regulate the flows and control clean water availability, floods, etc. The ways in which local populations experience climate change therefore often strongly depends on these management and technological aspects. After drought or flood disasters, citizens often call for an increased protection level. Given that, due to climate change,

the frequency of these disasters would increase, water and environmental authorities and engineers play an important role in the enhanced control of the water systems. This involves more efficient use or regulation of the available storage volumes, by current or new advanced technologies.
Interestingly, when implementing these new management strategies or technologies, cooperation with stakeholders, including local communities, becomes more important. To be able to cope with the increase in urban flood risks due to inundations of sewer networks, for instance, a more decentralized approach is required where parks, playing gardens for children, sport terrains, etc. can be used for temporary flood storage. Many of these are located privately, hence showing the importance of the role of individual citizens (Staufer at al., 2008), most often supported by political representatives. It also requires stronger cooperation between city planners and water managers.
Climate adaptation, moreover, has to take into consideration the huge uncertainties in the future climate projections, due to the high uncertainties in future greenhouse gas emissions, the limited physical knowledge on climate and water system responses provided by climate and impact models, the uncertainties in future demographic, social and economic changes, the future mix of energy sources, etc. Due to these uncertainties, new types of management strategies have to be developed, which are flexible (adaptable) and which allow changes to be made (with minimal total cost) depending on the future climate evolutions. At the same time, one has to avoid the high uncertainties leading to inaction in the present, which might be dangerous depending on the risks involved. Discussions on the latter require the risk concept (probabilities, vulnerabilities, consequences …) and the related precautionary principle to be considered.

Decentralized approach and increased involvement of local communities

The need for adaptation and planning that is adaptable in the face of uncertainties, and the required change towards a more decentralized approach to water source control, demand appropriate communication and cooperation with local communities, and greater creativity in looking for best spot-specific solutions. This requires commitment to continuing “active learning” and partnerships and collaborations via learning alliances (Ashley et al., 2008). Our LECHe project aims to play an important role in that process. Active learning (called “social learning” by Pahl-Wostl et al., 2008) leads to a shared understanding of the water system and the challenges to this system. It can develop the capacity by different stakeholder groups to both accept different interests and points of view on risk and performance along our water systems, and also to be able to utilize different types of response and at different times of implementation. Consequently it might lead to the collective management of our water resources in a sustainable way. The usefulness and importance of adaptive learning is shown by the fact that flood receptors (people, nature) have historically been able to adapt. The history of human society indeed shows that communities have been aware of the need to live with floods and droughts and have adapted through experience.

Active social learning

Stakeholder participation and active learning processes require that professional and institutional stakeholders behave differently with regard to the public and community stakeholders; being more inclusive and willing to share knowledge at the appropriate levels (Ashley et al., 2008). Professional and institutional stakeholders have to change, for instance, the view of many urban citizens that flood risks are unacceptable and need to be dealt with by the governmental agencies. Also the role of the insurance industry has to be considered. In many European countries, citizens are routinely insured against flood risks. The same citizens, however, have to be aware that insurers are now re-appraising their position in areas where flooding is becoming more common and where flood insurance may become in the future too expensive (Ashley et al., 2008).

If we take again the example of urban flood risks due to increased precipitation extremes, municipality planning experts in The Netherlands learned that 40% of municipalities experience declining public acceptance of water in the street (due to limited urban flooding) in recent years (van Luijtelaar et al., 2008). At the same time, if climate scenarios situated in the high impact range become true, it will be nearly impossible to fully cope with these flood events and local communities have to accept and learn to live with these short-duration local urban floods (as some communities did in the past). This shows that it is necessary that adaptation strategies are combined with supply of adequate information. Through such stimulation of public awareness, individual property owners could also be convinced to contribute to be adaptation (e.g. in this case by restricting the paved area or by allowing rainwater infiltration on their own land). They also could be provided with relevant information about possible threats and allowing the public to protect their properties. Citzens and property owners also could help by, for instance, keeping drainage inlets clear of leaves and debris during the flood season, to maintain gutters, etc.

Social scientists in some areas are undertaking the task of identifying the risk awareness of the population and its willingness to take part in the changes in attitude and behaviour required (e.g. German Klimanet project: Staufer et al., 2008). In cooperation with city planners, ecologists and social scientists, investigation can be made on how adaptation (e.g. change in management strategies) can be combined with advancing the city or district appearance and the well being of its habitants. Building new storm water facilities can, for instance, be seen in connection with planning of new recreational areas or leisure facilities.

Given that these local scale measures will also affect more downstream water systems, cooperation needs to be organized between the local “municipality level” stakeholders (including city planners or even local property owners) and river basin authorities. As outlined above, the same applies to cooperation with insurers, spatial planners, etc. Adaptive management can also help to overcome conflicts which currently exist between these stakeholders (or between groups of stakeholders; such as upstream versus downstream water managers; between water managers and insurers; etc). As stated by Williams et al. (2007), “without active stakeholder involvement an adaptive management process in unlikely to be effective”. This all shows the importance of exchange of knowledge and cooperation between disciplines, between academics and practitioners, between socio-economic and technological experts, the involvement of lay-citizens, and the integration of various knowledge systems. The LECHe project aims to contribute actively to these needs.

The water module of the LECHe project

In the LECHe project, teaching modules will be developed that provide climate and climate impact knowledge, and a general conceptual framework and interdisciplinary methodologies to explore climate change experiences. They will be applied to the water sector, covering various types of human problems, such as:

- water scarcity limited drinking water supply, irrigation and agricultural flood production, hydropower, water for industrial use, navigation, recreation;
- inland river floods;
- coastal floods and salt intrusion due to sea level rise;
- urban drainage floods causing material damage, human health risks, surface water quality deterioration and wastewater treatment problems;
- etc.

For each of these types of problems, examples will be collected from both developed and developing countries, taking two river basins as example cases: the Nile basin from the South and the Rhine basin from the North. We will focus on episodes with severe water scarcity, flooding and/or pollution problems, and the lived experiences as they relate to social, economic, and environmental impacts. We will analyze and discuss how populations in the past were able to adapt to changing climatic conditions. The role of water management and technologies in mitigating and/or adapting to the effects of climatic change will be described, and the changing role the management strategies will play in the future. The latter involves – as discussed above – a more decentralized approach, a stronger involvement of stakeholders (including local communities), active learning and partnerships and collaborations via learning alliances. At the same time, the important role the LECHe project can play through its e-learning virtual mobility focus will be explained and demonstrated.

Since developing countries will be most strongly affected due to their socio-economic situation, special focus will be given to societies in Africa that have been negatively influenced by climate oscillations during the past 50 years (examples for Africa were given above).

Masters dissertation modules will be developed, in which students can study their own cases (e.g. analyzing water stress episodes in their own country), discuss the social, institutional, political, economic and physical environmental contexts, the current management approaches installed and plans for the future, lessons learned from past disasters and the social debate, recommendations for sustainable adaptation, etc. The Masters research will be steered by a conceptual framework or guided by proposed methodological approaches. Research of a strong interdisciplinary nature is aimed for, where the required multi- and interdisciplinary background knowledge will be provided in the LECHe teaching modules. The LECHe Masters programme will allow students to increase their knowledge through a virtual learning environment, but will also allow them to participate in a learning community of people with a wide range of professional or disciplinary backgrounds, from quite different socio-cultural and physical environments, with a variety of perspectives and methodological traditions. LECHe will allow them to go beyond the disciplinary impact analysis of climate change. It also will allow them to contribute (through their Masters dissertations) to the establishment of a interdisciplinary, pluralistic and holistic methodological approach of understanding climate change and related inter- and multidimensional consequences. Hence it will develop what the project terms ‘transboundary competences’, that will prepare students to contribute effectively to sustainable development in a changing climate context.

Conclusion

There are particular reasons for including natural resource expertise in curriculum on the lived experience of climate change. Firstly, our basic human needs are dependent on access to natural resources, such access being critically affected by climate change. Secondly, natural resource expertise is directly concerned with real-world problem solving to enable continuing access. Following on and thirdly, the expertise is inherently multi-disciplinary, leading to the possibility of interdisciplinary solutions. In the LECHe project we focus on expertise associated with the water sector as water is arguably the most basic of natural resources as the source of food and life. More specifically, this sectoral expertise contributes to climate change curriculum and our understanding of its lived experience in the LECHe project through combining earth system sciences, water technology and water management. At first, knowledge will be provided on the impact of climate change on rainfall, its spatial patterns, frequency and severity, whether in the form of droughts or floods. Thereafter, insight will be gained in the role that water technology, provided by environmental authorities and engineers, can play in the enhanced control of water systems which are necessary for successful climate change adaptation. Also water management will be discussed, especially decentralized water management based on multiple-stakeholder cooperation and flexible adaptation to uncertainty induced by climate change. Decentralized water management recognizes the potential of multi-stakeholder cooperation for creativity and innovation through active (or social) 'learning alliances'. Active learning (or "social learning"), for example within citizen user groups, or between these groups and scientists and policy makers, aspires to a shared understanding of the water system and the challenges to it in order to deal with complexity and uncertainty. The concept of active/social learning is particularly appropriate to the LECHe project where the envisaged learning communities and engagement through virtual mobility may be seen as directly experiencing social (or active) learning 'by doing'.

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Wilson, Gordon: Expanding the knowledge base of climate change through collaborative Masters curriculum.

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Abstract

Climate change is a complex, real-world, defining challenge of our times where relevant knowledge and action are not confined to the epistemological foundations of any single academic discipline, although many such disciplines can and do contribute. Climate change education, therefore, requires a holistic approach which brings together different academic disciplines. This paper further argues, however, that, while this is necessary, it is not sufficient because the complexity of climate change cannot be captured by academic knowledges alone. An expanded notion of interdisciplinarity is required which integrates academic disciplinary knowledges with experiential knowledges of climate change of both professional practitioners and citizens in their daily lives. The paper explores the operationalisation of these considerations in Higher Education through a European Union Erasmus project 'The Lived experience of climate change: interdisciplinary e-module development and virtual mobility'. The project brings together five distance teaching and three conventional universities across six EU countries, plus the EADTU, to create Masters curriculum in the area.

Introduction

Climate change and its consequences for the functioning of human societies represent a defining challenge in the 21st century. Responding to it is of paramount importance, and is a key element of sustainable development policies and strategies. The United Nations Decade of Education for Sustainable Development (2005-2014) recognizes the key role of concerned, well-informed citizens in holding their national governments and international bodies to account. More recently, several European Union governments have pledged to create 'green economies', requiring a cadre of professional specialists in low- or zero-carbon technologies, and in developing appropriate policies and legislation. Thus, whether we are referring to concerned citizens or to a cadre of professionals, education, including Higher Education, is at the core of the climate change challenge[156]. Moreover, it

[156] This statement applies to all forms of education, including that which is non-formal. The focus of this paper, however, concerns formal Higher Education, although the project on which it is based also has a significant non-formal element which is touched upon towards the end of the paper. Many of the points made in the paper are generic and can be applied or at least adapted to non-formal education.

returns educationalists to a basic question: Why are we here doing what we do? Is education only an end in itself, or is it/should it be also a means towards addressing pressing challenges which face societies?

Climate Change is also strongly contested[157]. Made most visible by the media are the debates between the majority of climate scientists who contend that the world is warming because of anthropogenic activity and the minority who are sceptical. Further debate takes place within the former group over the extent and rate of change (By how much will the world's mean temperature rise over the coming decades?), and over its biophysical impacts (What will be the impact on melting polar ice caps, rainfall patterns and biodiversity?). These debates take place within climate science, but debates also abound within social science disciplines. In economics, for example, assumptions are made and debated over rates of economic growth (Spash, 2007) and of how much value to accord the lives of future generations (e.g. Pearce, 2003).

A further complication is that scientific debates, from whatever discipline, are not neutral politically. In both national and international forums they are seized upon to support different policy positions or to attempt to negate the policy positions of others (Nelkin, 1977). International forums are often conflictual affairs, driven by the national interests of different country governments, even before they start to marshal the different scientific evidence in their favour. For example, at successive World Summits, from the first Environment and Development Summit in Rio de Janeiro in 1992 to the Copenhagen Summit on climate change in 2009, there has been a fundamental fissure between the rich countries (the global North) and the poorer countries (the global South) over the latter's 'right to development', both economically and socially.

Thus, it is safe to say that both the science of climate change (from the natural to the social sciences) and policy positions arising from different political interests are highly contested. This is hardly surprising. All of the sciences actually thrive on disagreement, and, in an unequal world, clashes of political interests are inevitable which hinder the creation of effective overseeing international bodies.

Such a spectrum of contestation often gives rise to a paralysing despair over the failure to agree on almost anything in relation to climate change. The argument of this paper, however, is different. Taking our cue from Hulme (2009), it extends the observation made in the previous paragraph, to argue that disagreement in the sciences is, in fact, the means by which knowledge progresses. Difference and contestation are thus crucial resources for learning and 'better' knowledge and hence 'better' action. Even in the, generally speaking, more positivist views of natural scientists, this constructivist view of knowledge holds true.

It follows that climate change education should not attempt to provide unequivocal 'correct' answers. It should recognise that difference is not only inevitable but should be embraced as the basis of new knowledge on which we can act. We generate new knowledge of how to do things differently from our differences. People with similar mindsets, perspectives, experiences are less

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[157] This paper is about Climate Change, although it should also be noted that the very nature of the concept 'climate' is widely contested,

likely to create much knowledge that is really new through their engagements with one another – they tend to focus on doing better what they already know about.

In short, climate change education, at least in Higher Education, should both problematise the concept of difference in relation to knowledge (i.e. it concerns knowledge about knowledge) and the contents of that difference through the different scientific disciplines.

The paper expands this argument as follows:

1. It links a critical understanding of difference and contestation on climate change to developing citizen capacity to engage in public action and policy formation.
2. It extends the concept of difference and contestation within scientific disciplines to that between them at their boundaries, which is captured within the concept of interdisciplinarity.
3. It further extends the concept by asking the question 'Whose knowledge counts?' (Chambers, 1997). The question has two dimensions, analytical and normative:
    a. The analytical dimension analyses the power dynamics in knowledge encounters – within disciplines, between disciplines, between the disciplinary sciences and lay experiential knowledges, and between different lay experiential knowledges. It essentially seeks to answer the question: 'Why is academic disciplinary knowledge privileged'.
    b. The normative dimension explores the reasons for introducing lay experiential knowledges – which we call the 'lived experience of climate change' – into higher education on climate change.

These dimensions are currently being brought together in an ambitious European Union Erasmus project, 'The lived experience of climate change: e-learning and virtual mobility', (LECHe), which brings together eight Universities across six EU countries to support Masters study in the area. The project is creating curriculum resources (which will eventually become open educational resource), technology-supported learning communities and a platform for virtual mobility of students. Its essential features are described in Box 1. This paper focuses on the content of this curriculum in relation to knowledge and difference, and follows the three lines of argument indicated above, with each forming a separate Section. It draws its inspiration from the phrase which begins the project title, 'The lived experience..', which was chosen deliberately because: a) it recognises the legitimacy of knowledge gained through personal, social and local experience alongside scientific knowledges in climate change debates; and b) it is not constrained by disciplinary boundaries. The paper also touches on dimensions concerning the process of producing such curriculum and of student learning, its use in different kinds of University, and the particular importance of sectoral expertise. These further dimensions, however, form the subject matters of other papers in this series (Abbott, 2010; Pérez, 2010, Willems, 2010) which address them in more depth.

Box 4. The lived experience of climate change: e-learning and virtual mobility (LECHe).

This project creates postgraduate curriculum and virtual learning communities in relation to climate change. It aims to: a) contribute to an informed, active European citizenry and the United Nations Decade on Education for Sustainable Development; b) inform EU policy. The project focuses on the lived experiences of climate change -- how individuals, communities and organisations conceive and respond to its perceived local impacts (e.g. extreme weather, biodiversity changes). It involves collaboration between eight Universities plus the umbrella European Association of Distance Teaching Universities,.

Three imperatives drive the project: firstly, as educators, it is our duty to expose students to the range of perspectives and knowledges about climate change, including those which are experiential. Secondly it is particularly important to expose them to knowledge of the sectors on which climate change impacts directly. These are the natural resource sectors where water as the source of life is paramount. Thirdly, we should equip students with the means of working across and learning through the range of knowledges to which they are exposed, by developing competences for communicative engagement.

The educational level of the project is postgraduate Masters. A key feature is that it complements existing and proposed Masters programmes in the area, rather than attempts to create a parallel programme. Consortium members, and indeed any University anywhere in the world once it becomes open educational resource at the project end, are free to use or adapt the content within their own programs, through their normal accreditation processes. The teaching modules which are created can also be used flexibly by students: as available educational resources without assessment or accreditation to enhance their studies, or as conventional modules with assessment and accreditation.

Based on a virtual learning space, the main phases of the project are:

1. Development of the overall design of the curriculum, the virtual learning communities and virtual mobility for students. This phase has recently been completed.

2. Collaborative creation of the curriculum and associated virtual learning communities among the partner Universities. This phase is currently underway and involves development of:

a) Three teaching modules: (i) An introduction to climate change in the context of sustainable development; (ii) Comparing the lived experiences of climate change in the global South and North; and (iii) Interdisciplinary research methods for investigating the lived experience of climate change

b) A Masters dissertation package based on the virtual learning space which contains: (i) a repository of suggested dissertation topics; (ii) hyperlinks to existing local, national and regional projects on climate change and their databases, and to lectures and other resources; (iii) a repository of Masters dissertations in the area.

c) A virtual mobility package which supports two kinds of learning community:

i) For students and tutors/supervisors on any of the modules described above and on student dissertation topics.

ii) A moderated virtual café which expands access to citizens and organizations who might be the subject of dissertation projects, allowing for a dialogue on climate change between citizens and academia.

3. Pilot delivery where students from the participating Universities enrol in the virtual learning space and benefit from the educational resources, learning communities and virtual mobility offered. They are guided by institutional staff who also act as learning community moderators. At the end of this 15-month phase, the student experience will be fully evaluated and the teaching modules adapted accordingly before becoming available as open educational resources.

4. Ongoing phases throughout the project involve quality assurance and enhancement (through peer review processes and external assessors), dissemination and long-term exploitation/sustainability.

Why (higher) education on climate change? Public action and its role in public policy

'Fiasco', both in terms of process and outcome, is a common label that is used to summarise the Copenhagen Summit on Climate Change which was held in December 2009 (COP15). Whatever the shortcomings on process, the outcome was generally deemed unsatisfactory: contrary to what had been hoped for (and even expected in some quarters), world leaders at the summit did not sign up to any binding agreement in relation to reducing carbon emissions. But was it right in the first place to put so much reliance on the Copenhagen event, reliance that raised hopes and created a hostage to fortune? Did not this reliance also amount to abrogating our responsibilities as citizens through setting up straw people who by definition fell down when they failed to deliver?

The fundamental justification for the LECHe project is that citizens do have a responsibility for shaping policy on climate change, at local, national and international scales, and that Higher Education (and education in general) has a key role in empowering citizens to take on this responsibility. The responsibility is encapsulated by Al Gore, ex-Vice President of the United States, now turned climate change campaigner:

"A day will come when our children and grandchildren look back and ask one of two questions. Either, 'What in God's name were they doing? What was wrong with them? Did they think all the scientists were wrong? What were they thinking?' ... or ... 'How did they find the uncommon moral courage to… redeem the promise of American democracy and do what some said was impossible and [say] we're going to do what's right?'"

(Al Gore speech to US Congress, March 2007)

Justification for the intervention of citizens in shaping progressive policy on climate change can be found when we examine the history of public policy and action generally which shows that they are rarely the sole acts of benign, neutral government drawing the right conclusions from technical analyses. More likely they represent processes of more-or-less ruly accommodations between many players and their different interests. Governments may be the most important of these players, but they are not the only ones: interested professional classes, civil society associations (for example trade unions and non-governmental organisations) and concerned individuals also figure. The history of public health initiatives in the 19th century UK provides a useful lesson in this regard, the favourable social indicators of the Indian state of Kerala compared with the rest of India another (Sen, 2002). There is no reason to suggest that these lessons of how public needs come to be defined through public action and contestation between different societal groups, where citizens are key players, do not also apply to the international arena.

With respect to climate change, we owe a great debt to the scientists who have created a professional knowledge consensus under the umbrella of the United Nations Intergovernmental Panel on Climate Change (IPCC) and who have ensured that the issue is on national and international agendas. As just argued, however, we should not forget the potential of *informed* citizens operating individually or collectively in defining public policies and actions. This role is more than 'green' behaviour in terms of, for example, doing our bit to reduce carbon footprints. It is also more than our right in many countries to elect and de-elect our governments, important as that is. (In any case, at an international scale, a world government that is democratically accountable is not even on the radar.) Nor does it necessarily concern our ability to mount 10, or even 100, demonstrations relating

to Copenhagen or similar events attended by world leaders. Rather, it does concern, our abilities to apply individual and collective pressure through a combination of working with, and where necessary confronting, governments and their international manifestations, and demonstrating alternatives.

The qualifying adjective 'informed', of course, provides the link to education. 'Informed', however, is not restricted here to meaning simply citizen understanding of the science of climate change and its likely impacts, or of the social science of socio-economic impacts. Such understandings are undoubtedly necessary to be 'informed' but they are not sufficient. Knowing the 'facts' is neither enough to change personal lifestyles nor to change policy. This is because the 'facts' might contribute to our knowledge, but they do not represent that knowledge. We reflect on 'facts' and assimilate them through our personal and collective experiences, experiences which are influenced by our histories, our material and social circumstances, our ways of life and mindsets, and so on. This represents the most compelling reason for not just broad-based education about climate change in the sense of understanding the science, the economics, the politics and so on, but for an expanded version which is based on an understanding of the nature and importance of our differences that enables us to act.

It takes only a moment's reflection to realise that that this expanded version of climate change education also includes developing competences to engage with each other in order to work with difference as a positive resource. This development does not simply concern our ability to negotiate, broker, identify common ground and so forth, it also requires an aspirational change -- respect for the knowledge of others, including a willingness to listen, share, and generate creative common solutions. Such competences for embracing and synthesising difference through communicative exchange are called 'transboundary' and form the subject matter of another paper in this series (Pérez, 2010; see also De Kraker et al, 2007). They are evident in the LECHe project through the collaborative process of curriculum production across 8 Universities, and through the pedagogical approach encapsulated by the virtual learning communities in the project's virtual mobility space.

Thus, by 'informed', this paper does not mean an end state of knowing the 'facts' but a process of 'informing and being informed' through communicative exchange with others. That is the true measure of citizenship, and one which can help our national governments and the international forums in which they participate to arrive at appropriate public – in a global sense – policies and actions with respect to climate change.

Expansive climate change education (1): interdisciplinarity

For probably two decades at the end of the 20th century, anthropogenic climate change research was the primary preserve of natural scientists who have since achieved a consensus about the scale of the challenge. This consensus has derived in particular from their contributions to the aforementioned Intergovernmental Panel on Climate Change (IPCC), set up in 1988 by the United Nations Environment Program and the World Meteorological Organization. As Blackmore (2009) notes: 'The IPCC is an extraordinary example of international and interdisciplinary collaboration between scientists and other academics across the world. Their efforts have advanced significantly

our understanding of how the earth's physical and biological systems, its atmosphere, oceans, land, ice and the living world including ourselves, interact and influence each other.'

More recently other sciences have addressed the theme of climate change, such as political science with respect to governance issues (Breitmeier, 2008) and economics with respect to the costs and livelihood impacts associated with the challenge. The latter is exemplified by the Stern Review (2006), 'The economics of climate change', which was commissioned by the UK Government, and which has attained international influence.

Just as research on climate change has been dominated by the natural sciences, with later entrants from social science disciplines, so too has University teaching. While the reproduction of disciplinary specialists through University teaching is both inevitable and also in many respects commendable in order to gain in-depth insights into particular aspects of climate change, the question arises as to what is then left out of the equation. To answer this question we need to start with the subject – climate change – rather than particular disciplinary approaches.

Climate change is a real-world, global challenge, and such challenges rarely fall neatly within the epistemological boundaries established by academic disciplines. Brewer (1999) put this bluntly when he stated: 'The world has problems while Universities have departments'. The corollary is that education through no single discipline can capture the complexity of climate change. This observation remains the most compelling reason for interdisciplinary approaches to the study of real-world problems (Mohan and Wilson, 2005) such as climate change, where exploration at the boundary interfaces of academic disciplines presents opportunities for gaining insights which would otherwise remain hidden. Note, however, that this approach does not seek to challenge the importance of individual disciplines – interdisciplinary should not be equated with anti-disciplinary – but to build on their interfaces to construct new knowledge.

The LECHe project does not only involve nine institutions and six countries, it also cuts across natural science, engineering and social science disciplines. The first module it is creating is called: 'Introduction to climate change in the context of sustainable development'. The major sections of this module concern respectively:

- Climate science, written by three physicists
- The economics of climate change, written from that perspective
- The geopolitics of climate change, written by a political scientist
- The impacts of climate change on human beings and their societies, written by a human geographer from a sociological perspective.

Creating the above four, largely self-contained, introductions to disciplinary perspectives on climate change, while necessary, does not, however, equate to an interdisciplinary module – multidisciplinary, yes; but interdisciplinary no. A further major section of the module, therefore, draws on these disciplinary introductions and combines them within the concept of sustainable development. The challenge of achieving such a combination is, without doubt, considerable and requires an ability to work across knowledge boundaries, respecting each other's knowledge, and drawing on similar competences to those that we expect to develop in the module's students.

The plausible claim made for interdisciplinarity is that working within single disciplines is constrained by the conceptual frameworks, theories and ways of thinking which have evolved within a discipline over time. Conversely, working across disciplinary boundaries is liberating and potentially leads to new and interesting insights. The latter is the aim of the LECHe project, but achieving it raises a

further challenge concerning the critique of interdisciplinarity, the basis of which is that it lacks methodological rigour.

It is easy to see and acknowledge the basis of the critique. It is essentially the opposite side of the coin to the claim made about insight. The conceptual frameworks, theories and ways of thinking of single disciplines provide the categories for research and analysis, and strong methodologies and associated methods have evolved alongside them. In contrast, interdisciplinary frameworks and ways of thinking have to made anew, there is nothing that can be taken off the peg as it were, no routines of methods and methodologies. The result is often an eclectic mix of methods in interdisciplinary research.

Conventionally (and hegemonically) rigour relates to:

- The validity of 'discovered' causal relationships between phenomena, both the internal logical consistency of the analysis, and the degree to which alternative measures and methods confirm it (i.e. processes of triangulation)
- The reliability of an investigation, quite often expressed through the ability to replicate it and produce the same findings
- The objectivity of an investigation.

(Adapted from Guba and Lincoln, 1989).

Interdisciplinary rigour has no option but to challenge this conventional approach, although it can parallel aspects of it. For example, global problems such as climate change are defined by multiple stakeholders, and one can envisage a process whereby the multiple stakeholders of interdisciplinary investigation also confirm the validity of the analysis through a process of dialogue and convergence between researcher and researched, which will also detect errors. A similar process can also confirm reliability, while an audit trail can confirm the transparency of the research process and hence provide an alternative to 'objectivity'. (Ibid; see also Mohan and Wilson, 2005).

It is important, therefore, that students do not embrace interdisciplinarity as a given 'good thing'. They need to critically engage with it, both acknowledging the critique and a possible response to it. Abbott (in Wilson et al, 2010) argues that this makes for potentially exciting, but also demanding, dissertation research projects where students will be offered the opportunity to move from known and 'safe' disciplinary boundaries that they may be familiar with, to cross-disciplinary, unfamiliar ones and adopt multi-method rather than singular approaches. The aim is also that students will begin to realize that research does not just stop at the empirical or writing stage and that knowledge continues to be created through action, sometimes action that generates policy. As an example, scientific data can be complemented by participatory action research (PAR) which is often adapted to investigate poverty related issues and is particularly relevant given the predicted negative impacts of climate change on poor people. PAR includes a range of stakeholders throughout the research process to capture direct knowledge arising from 'the voices of the poor', in turn generating the potential to build action around and feed into policy on mitigation and adaptation. Underlying the aforementioned questions on how to build methodological rigour, generate data and interpretation to converge towards a better understanding of events in the field are the ethical and moral questions related to fieldwork, particularly that led by relatively affluent academics and students investigating lived experiences of women, marginalized groups and people in poverty in both Europe and developing countries [Abbott, 2006, 2009)]. Of course such investigations are necessary because they bring to wider attention groups who otherwise tend to be forgotten, but reflection of this kind inevitably leads to a wider understanding of climate change.

Expansive climate change education (2): interdisciplinarity and lived experience

The key words in the project title, 'lived experience' imply an expansion of the notion of interdisplinarity to recognize the validity of, and introduce into the mix, non-academic knowledges of professional practitioners and citizens. Such knowledges interact with, and are influenced by received disciplinary knowledges, but they are primarily tacit, being based on personal and collective experiences and shaped by a host of socio-economic and political policy factors, and life events over time. In an important sense lived experiences are epistemological opposites of disciplinary knowledges. Also, unlike disciplinary knowledges, which tend to change incrementally and slowly, lived experiential knowledges are relatively dynamic. This is because there is a continual process of engagement and iteration between an individual or group's lived experience and other individuals and groups, actions taken and reflection on that engagement. Thus poor people, especially those in developing countries who experience more directly the ongoing negative impacts of climate change on their livelihoods as droughts, floods, etc. affect food, health and other entitlements, are nevertheless not passive victims. They do respond to their lived experiences of climate change, even though this might not be articulated explicitly, and they reflect on that action which contributes to the evolution of that experience. Sometimes major climate events, such as a prolonged drought or rains (see for example many that are identified by USAID's Famine Early Warning System, **http://www.fews.net/Pages/default.aspx**) will lead to profound changes in one's lived experience.

Incorporating lived experience into curriculum alongside academic disciplinary knowledges and exploring the interfaces is indeed a challenge. Even more of a challenge concerns how we as academics, and students themselves as they undertake Masters dissertations, might represent lived experience. This is because, while at an abstract level we each have individual lived experiences of climate change which we are able to share easily with those of similar mindsets to ourselves, grasping and representing knowledge articulated by differing mindsets inevitably takes us beyond our epistemological and ontological assumptions (Johnson and Wilson, 2009). Thus, our different mindsets might centre on social and cultural difference, professional difference, academic difference (e.g. natural and social scientists), and so on.

In teaching, and academic deliberation generally, the challenge raises the question of how to conceptualise 'lived experience' and how, if we are to advance knowledge through collective engagement, to work with the differences in mindsets. As a starting point we can postulate that lived experience is knowledge shaped by the temporal dimension of personal and collective histories gathered over generations, the broader political and economic influences which shape our lives both in the global North and South, our engagements with other knowledges and our perceptions of direct biophysical impacts associated with climate change that challenge our lives and livelihoods either of poverty or of affluence. Such knowledge is further filtered through individual standpoints and power positions in local and wider society (for example, those arising from gender and race). The dynamics of how these factors interact to generate, perpetuate and evolve 'lived experience' have not been explored in depth, nor has the concept been interrogated alongside other knowledge claims made by academics and professional practitioners. Thus even at the starting point of deconstructing the concept of lived experience, there is an enormous potential to expand and develop our knowledge of climate change.

Two particular analytical issues stand out:

- Analysing critically the validity of lived experience as a knowledge alongside academic disciplinary knowledges. Here we cannot avoid a Foucauldian knowledge/power investigation (Foucault, 1980), where academics and dissertation students have to ask questions about why and how academic disciplinary knowledge is privileged without falling into the debilitating opposite trap of *a priori* valorising lived experience. Lived experience, like all knowledges, will have its uses and mis-uses, its truths and untruths, in different contexts and must be open to challenge.
- Following Habermas (1984, 1987a, 1987b, 1990)), analysing the possibilities for synthesising new knowledge through communicative engagements between academic disciplines (as in the previous section), between academic disciplines and lived experiential knowledges, and between the lived experiences themselves. Again, this is open to a knowledge/power investigation, but a subtle one. The challenge of working with difference is not to be under-estimated – in social terms it all too often translates into inequality and power differences between individuals, social groups and states, where the most powerful do their utmost to define the knowledge and hence the truth of a situation. But our ultimate dependence on each other in relation to a global issue like climate change also means that no power is absolute and that it can be negotiated, even if this is not an easy process (Wilson, 2009).

The ultimate reason, for tackling the above weighty issues in a Masters educational project is, however, normative: we seek to improve our own understanding of how to respond to climate change, an understanding which is holistic and which captures the essence of the challenge, and where there is real wisdom and the chance of a collective public endeavour. It almost goes without saying that, as part of the LECHe project, we will seek to persuade European policy makers on climate change of the wisdom of taking on board a critical understanding of lived experience alongside more conventional knowledges.

Much of the above suggests a need for 'blue skies' thinking. The LECHe project, however is aided in two ways. Firstly, we do not have to build the above conceptual and methodological understandings anew. They are at least latent in the natural resource sectors on which climate change impacts directly, and especially the ideas concerning participatory local management within these sectors. Two Universities in the consortium, Leuven and Wageningen, bring substantial expertise in this area to the project and we deal further with this subject in another paper in this series (Willems, 2010). Secondly, with respect to communicative engagement as a major intellectual, organising idea underpinning the analysis of lived experience and its interaction with disciplinary knowledges as a dynamic phenomenon, the project introduces a strong element of learning by doing, and in particular the development of transboundary comptetences (see the paper in this series by Pérez, 2010). This is manifested in the emphasis it is placing on interactive learning communities as sites of virtual mobility for students, initially across the European participating Universities, but potentially across the world. These learning communities, moreover, do not concern only students, their supervisors and other related University academics. Also planned is an expanded learning community to include those with whom Masters students engage in their dissertation research. These may be drawn widely: policy makers, politicians at local, regional and national levels, businesses, civil society and community groups. Together with the modules being available as open educational resources, these expanded communities add a significant non-formal learning dimension to the project.

Conclusion

The idea of the LECHe project grew out of deliberations of the EADTU Task Force on Sustainable Development, one of a number of Task Forces on different challenges facing EADTU Universities at any given time. The basic idea that crystallised in the Task Force was to produce curriculum which could complement and add to existing programmes in individual EU Universities, rather than attempt to establish a separate curriculum programme that might be in competition with them. Given that most existing relevant programmes are either in the environmental sciences, or connected to social science disciplines such as politics and economics, the lived experience of climate change was promoted as something new, different and complementary.

Being new and different is not by itself sufficient, however, to create complementary curriculum resources around the lived experience of climate change. The concept requires substance. The starting premise of the EADTU Task Force on Sustainable Development was that knowledge of how citizens and social groups experience climate change is essential in order to formulate effective policy. In other words, understanding the science (in its most generic sense) is definitely necessary, but not sufficient.

This paper is part of the process of adding more substance to the 'lived experience' concept, through examining it as a different kind of knowledge to that offered by academic disciplines. Unlike the generalisations provided by science, 'lived experience' is contextually bound; unlike the schema provided by, say, economics, it is characterised by subjectivity. This then leads us inevitably to a plural notion of the concept as no two lived experiences are identical, and in turn we are thus led to an epistemological consideration of difference and the potential, or otherwise, of difference to lead to new knowledge through communicative engagement. These ideas have formed the basis of this paper and are further expanded in the second module of the LECHe project which is currently being written: 'The lived experience of climate change in a North-South comparison'.

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Yahoui, Hanned & all ELLEIEC Partner: ELLEIEC, Enhancing Lifelong Learning for the Electrical and Information Engineering Community

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Abstract

The paper will present the objective and current state of ELLEIEC project. The implementation of the Bologna process offers us an opportunity to create a European dimension to our EIE (Electrical and Information Engineering) Degrees in the World Wide education area by convergence of our curricula and strengthening the links and sharing of resources between European Higher Education Institutions. The first objective of the ELLEIEC project is to develop a virtual European Centre for Entrepreneurship Education in Electrical and Information Engineering with an internal e-learning assessment offer which will be a reference point for any applicant in the Lifelong Learning framework. The second objective is to study through an experiment and a survey of the mutual recognition process to gather information on good practice in the design of International cooperation at both master and bachelor levels. At the same time, a study will be undertaken across different European countries on how to incorporate the accreditation of prior lifelong learning into the PhD process which will allow engineers within a company to move back into education to continue their studies and prepare and validate a doctoral thesis. This benchmark will be used to analyse the recognition systems required to ensure the appropriate credit transfer for prior informal learning.

1. Project objectives

For an educational institution, giving recognition and appropriate ECTS credits for an intensive training or a web based course, which uses its own internal pedagogical resources, is a common occurrence. However, with an Erasmus mobility agreement, because external learning resources are involved the validation and ECTS credit assignment process can result in a much longer pedagogical and administrative process. It should also be noted that in this case, it is the sending institution that determines the number of ECTS credits awarded and records the result for its own degree. The Erasmus process works better when after a long shared experience for formal learning a strong partnership is developed between two institutions. With Lifelong Learning the recognition problem is more concerned by accrediting non-formal learning and informal knowledge gained from external sources. With the Lifelong Learning programme, Europe has shown the importance of providing a framework for the identification and validation of these 'invisible' learning outcomes. Arising from this initiative, a large number of European projects have been launched in the two following topics:

- Inventory of validation of non-formal and informal learning has been produced with Cedefop, with a detailed survey of developments in European countries,
- European Qualification Framework for lifelong learning (EQF).

Unfortunately many institutions still undertake the time consuming process of evaluating all external learning without being fully aware of the new European process available.

Developing a system which will give a learner the opportunity to take advantage of external learning provided with full ECTS recognition will bring to Europe a valuable diversity and specificity in its qualification framework. The original idea was to conduct some experimental work to provide appropriate benchmarks and to undertake a set of surveys on relevant topics across various European countries. All the activities undertaken in this project will follow these objectives:

- to facilitate the faster exchange of information on educational systems by means of a central Gateway,
- to standardise the recognition of diplomas, other qualifications and study periods
- to stimulate student and staff exchange and cooperation between start-up initiatives
- to develop joint mobility networks and teaching materials
- to participate in mutual quality assessment of e-learning tools
- ELLEIEC[1] will principally deal with the following types of informal learning which are increasingly becoming available in HIE, companies, start-up and work-shop seminars & conferences:
- Web based courses: with the evolution of the internet, teachers increasingly are designing valuable web courses,
- Vocational Intensive course: mainly dedicated to employer learner and are generally of less than one week duration.

In general these kinds of informal learning, which have a workload range of close to 1 or 2 credits are not considered for inclusion in a classical formal course in HIE. To take account of this fact, the main output of task 3 will be the design of a Virtual Centre for Enterprise – Centre of Entrepreneurship. The Virtual Centre will provide learners with the opportunity to develop their competence in small, bite-sized pieces as and when they need them or as part of a planned overall learning strategy.

2. Project approach

ELLEIEC TN comprises 60 partners who are involved in a range of different tasks. Based on the experience gained from our last TN (EIE-surveyor) and the implementation of the Bologna process, we now wish to study and propose some experiments (Figure 1) to define the more suitable structure framework to improve European incoming mobility and international partnership taking account of the lifelong learning issue and recognition problem.

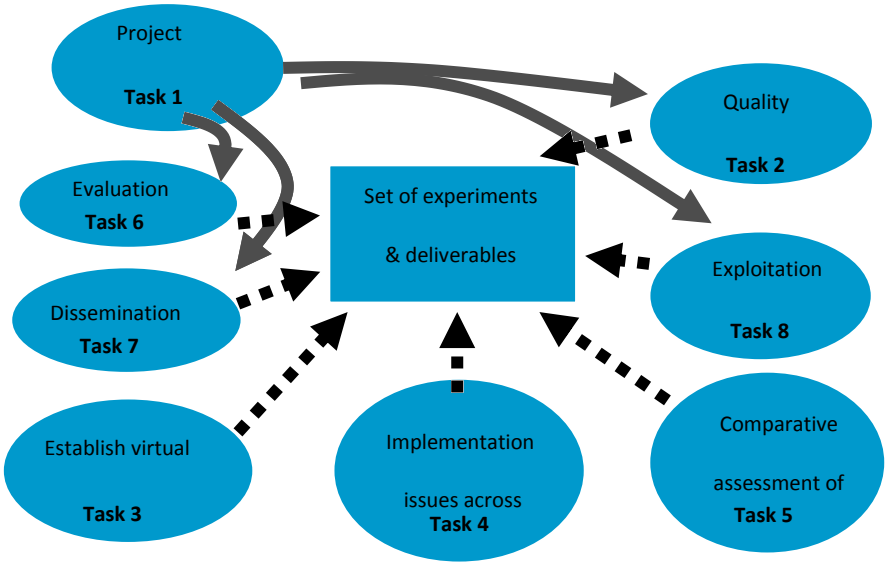


Figure 1: ELLEIEC project structure

There are three main development tasks (3,4,5) and a set of managing tasks (1,2,6,7,8). This ensures that we have the correct organisational structure to achieve our goals. All partners are involved in at least one of the 3 main tasks.

Task number:

1 Project Management
2 Quality Management
3 Establish virtual centre (main task)
4 Implementation issues across EIE (main task)
5 Comparative assessment of delivery methods (main task)
6 Evaluation
7 Dissemination
8 Exploitation of results

The consortium has been carefully chosen to provide the range of skills and resources required to bring the Virtual Centre for Enterprise into reality. The University of York brings access to an existing data bank of enterprise learning resources, access to a large student enterprise society, links to its partner UK universities of Leeds and Sheffield, access to enterprise assessment instruments through its Education for High Growth Industries project network, and access to its Skillsforge competence management tool.

To ensure the success of the project, we have, in our consortium, a set of relevant partners providing us valuable platform for our experiments:

- An International Bachelor,
- An Erasmus Mundus Master,
- Heads of Doctoral Schools,
- Start-ups and incubator agencies (associated partners),
- Members of accreditation board,
- Experts in assessment of e-learning tools,

- Associated partners from industry and institutions outside of Europe,
- Providers of e-learning centre.

Taking account of this spread of partners we will share the expertise of the various partners to launch a first set of ICN (International Curricula Network) experiments during the 2009/2010 academic year in a real situation (figure 2).

An ICN is a set of partners who agree all together to provide shared curricula or program (partially or totally) in a specialty. Ideally these shared curricula should be recognized at the accreditation level, but the process can be difficult in some cases. In order to initiate the ICN, we consider two pragmatic cases:

1. Cross recognition of "curricula" (learning outcomes, competences, Tuning approach), which is the fact when at least two institutions agree on common modules for an ERASMUS exchange (exchange of students and/or exchange of teachers),
2. Shared recognition of modules, which is the case when a set of modules is developed and implemented within the frame of a program (here, distant modules can be used).

Concerning this second point, we can consider the practical use of a module in various ways:

- Distant Course without tutor,
- Distant course with distant tutor,
- Distant course with local tutor,
- Local course.

The last role of the ICN is to act as a "pedagogical committee" in order to identify good approaches in the setting of existing or new LLL curricula.

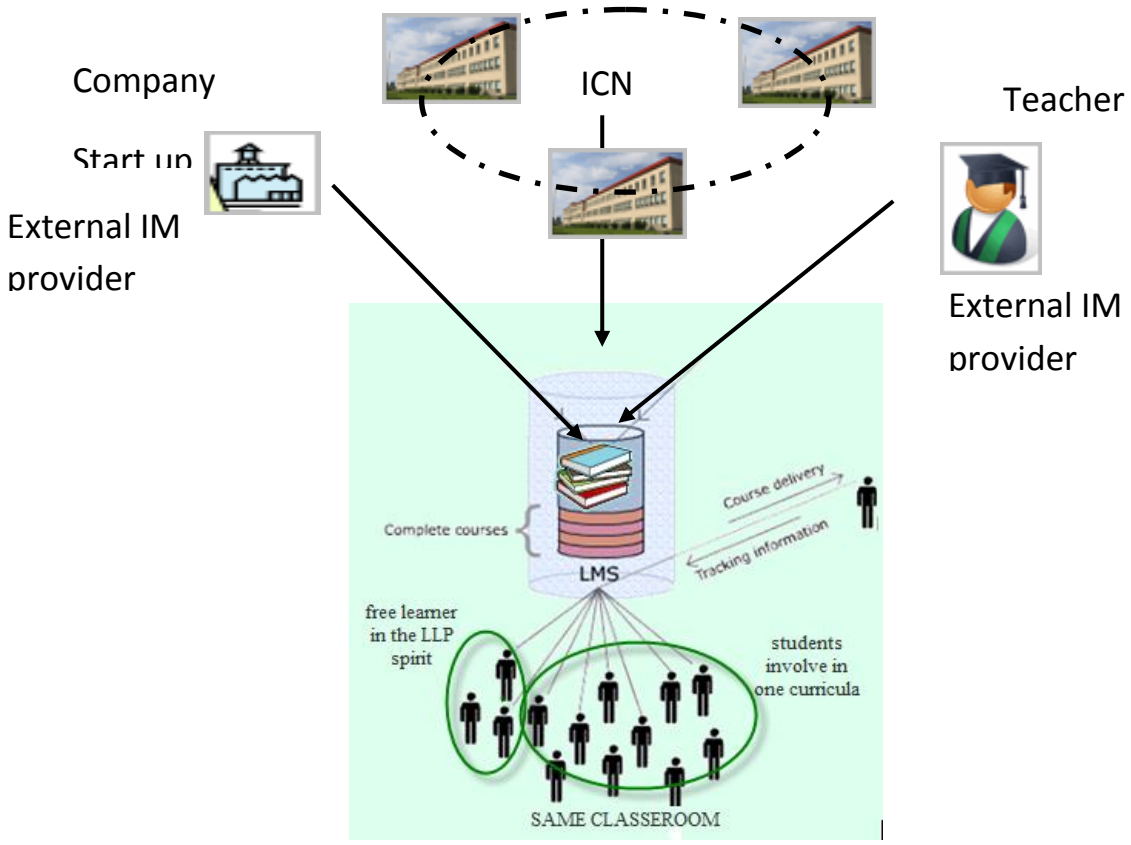


Figure 2: ICN composition: built with the potential of different ELLEIEC partners.

Experiments:

Experiments will be used to simulate in a real situation a process concerning each of our task objectives. For some experiments, ELLEIEC partners and some BMD degrees (**BMD**, Bachelor Master Doctorate), together with students, associated partners and pedagogical resources will be involved. They will take place during an academic year or during some dedicated events. A large part of the activities of the three main tasks (3,4,5) will be built around these experiments, Figure 3 (complete description of each experiment will be given on the three main tasks paragraph).

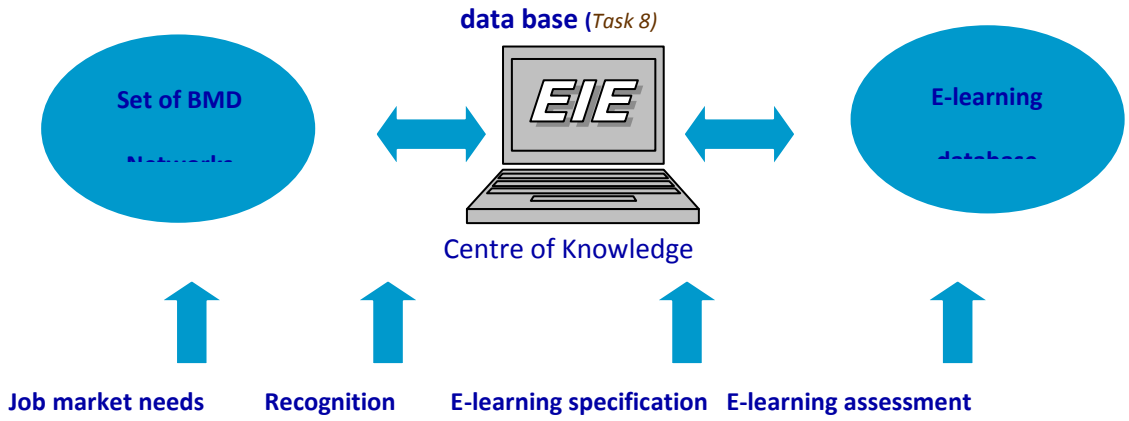


Figure 3: Interaction between tasks and Experiment

Experiments will help us to identify the main problems that need to be addressed before the proposed process can be implemented. A set of questionnaires, which will take advantage of all particularities and experiences of European countries involved in ELLEIEC TN, will be used in these experiments. As an added value, some experiments will focus their activities around the EIE (Electrical and Information Engineering) discipline with a special attention to innovative degrees corresponding to the pedagogical needs for developing new skills for new jobs.

3. Current Project Outcomes

One of the two main outcomes of our first term of the project has been to design the entrepreneurship centre and to propose the ICN concept which was not listed as a specific outcome at the beginning of the project. The entrepreneurship centre will be explained in a more detailed manner in the task 3 paragraph. In this first phase, the ICN concept in its first draft has been elaborated and some experiments have been conducted during the last academic year with collaborative work between tasks among various European countries.

After making a survey on the different platforms of web based or intensive course available on the net, it was noted that none of them were offering ECTS recognition in bite-sized pieces. This fact is

easy to understand as we know that each institution provides either their pedagogical courses or uses a bilateral agreement to recognise external courses for big size course modules. In the framework of ELLEIEC project we want to give access to some International Modules (IM: web based or intensive training classroom course) which are used already either in some existing bilateral agreement or in some informal situation and study their use, ensuring ECTS recognition, within an International Curricula Network (ICN) via the ELLEIEC project experiment and survey.

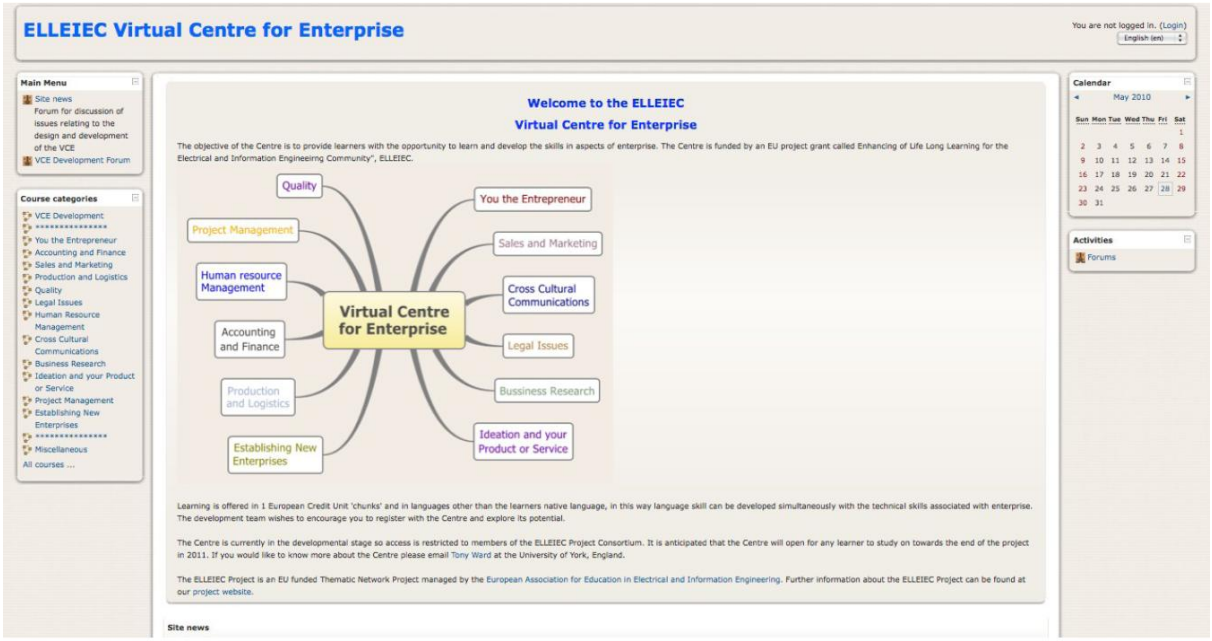
Definition of the ICN: The ICN is a set of Curricula and Course Providers related to the same field and cooperating in a multi-lateral agreement with full ECTS recognition. The curricula entity in the ICN will certify the level and number of credits attributed to the IM course offered by the provider body for its own degree. The provider entity is the owner of the IM used in the ICN and it is their prerogative to set the conditions for joining this course. The IM could be available as a simple link in ELLEIEC website or implemented in the ELLEIEC IM database (depending of the owner).

The organization of the work around the experiment is divided in three main tasks:

- WP3 is in charge to design the entrepreneurship centre as an IM provider,
- WP4 propose some curricula to analyze recognition issue at BMD level Bachelor Master and Doctoral level,
- WP5 propose an IM course framework guideline which will be used to specify the agreement between an ICN and an IM provider.

WP3: The overall objective of this task is to develop a sustainable Centre that will provide learners with enterprise education across Europe for the foreseeable future in byte-sized. To this end development and growth have been designed specifically to be steady, progressive and careful for the benefit of the long-term success. To ensure this long-term success establishment of the Virtual Centre VCE will be in three stages, the first stage will be a small pilot trial designed to test the learner registration, security and data protection parts of the system; the second stage will be a larger scale delivery designed to test how the system and its administrative systems respond to volume usage; the final stage will be the full scale delivery of the system. Stages 1 and 2 are addressed in this short-term section while stage 3 is described in the long-term targets section. The initial learning resources will be provided in English although actions to translate them into a range of languages will be started early in the project.

The first design of the VCE has been done and are available at url: http;//vce.york.ac.uk.



Top Section of VCE Welcome Page

The WP4 undertake an action to measure the need of competencies recognition through a set of some curriculum benchmark and a survey on the different frameworks used to take account of the Lifelong learning accumulation system.

The study will focus on the Energy, wireless network, Imaging & Computer Vision & robotics disciplines as there are parts of some running bachelor and master degrees within ELLEIEC partners. In a secondary way, the emerging of new challenges like market globalization, technology progress and growing unemployment will lead to a primordial adaptation of our classical curricula to participate to the competitiveness, innovation and attractiveness of the European area by enhancing the industrial culture and lifelong learning process inside our institutions.

A special sub task will describe the new missions and evaluation criteria that will be used for doctoral studies after harmonization following the Bologna process. A special attention is devoted to the studies in the field of Electrical and Information Engineering on the basis of experience in the direction of such a graduate school in France.

WP5: A key part of Workpackage 5 will be the quantitative assessment of the effectiveness of the bite-sized non classical learning available compared to similar learning by conventional teaching methods. The increase is not uniform across all learners in the class owing to the differing entrepreneurial aspirations of students, with some having no aspirations at all. The assessment of these measures is via a questionnaire given to the learners before and after the educational experience. These questionnaires will be built into the Virtual Centre such that all learners will be required to complete a questionnaire upon registration with the Centre and then post questionnaires periodically through their studies. The analysis of the pre and post questionnaires will enable the change in the entrepreneurial measures to be determined. The results will be of use to the project as it will, over a period of time, enable us to build a picture of the relative effectiveness of the available learning resources and their continuous improvement.

Two Cases of study have been implemented with students from Spain and England:

Spain: they are using mobile technology to deploy a more interactive delivery method where students employ the Tablet PCs to both follow the instructor presentations and to solve in-class active learning exercises. Additionally, the ease of soliciting responses from students enables instructors to integrate formative assessment into classroom practices and providing immediate feedback.
UK: This test aims to investigate the reasons for this decline and to examine whether or not there is a real issue in the methods by which mathematics is delivered in engineering subjects. It aims to find out whether new emerging e-learning tools are really a support or an obstacle when teaching mathematics. To this effect, a survey is carried out among final year Bachelor degree Digital Signal Processing students in order to obtain their opinion on the subject matter.
A workpackage Exploitation of results task 8 has provided the web software assistance to launch the first phase of experiments and to product the specification of the whole Web portal gateway with respect to the three main tasks needed until the end of the project.

4. Conclusions and perspectives

An analysis of the results achieved during the first year of the project will help to set correctly the next planned one. Based on our first results, the action of ELLEIEC consortium will work on the interaction between the three main development tasks to provide a framework for the ICN concept gathering experience from recognition assessment and new informal bite sized learning experiments and surveys. The real challenge of the ICN concept and the VCE (Virtual Centre of Entrepreneurship) will be to encourage all Involved associated and ELLEIEC members to use the courses online for their own degree with ECTS recognition to ensure its sustainability.
The second part of the project will be dedicated to the launch of new experiments and surveys during the second and third academic scholar years. Additional sub task will focus on:

- Lifelong learning application to PhD level,
- BMD advertising position offer,
- Database of paper outcomes.
- Analysis on New skills for new jobs in EIE.

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Instrument type: ERASMUS NETWORK

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